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SURVEY OF AMC (ARMY MATERIEL COMMAND) OWNED COMPUTER  
AIDED PRODUCTION SYSTEMS(U) NATIONAL SYSTEMS MANAGEMENT  
CORP ARLINGTON VA J H CLARK ET AL. MAY 88

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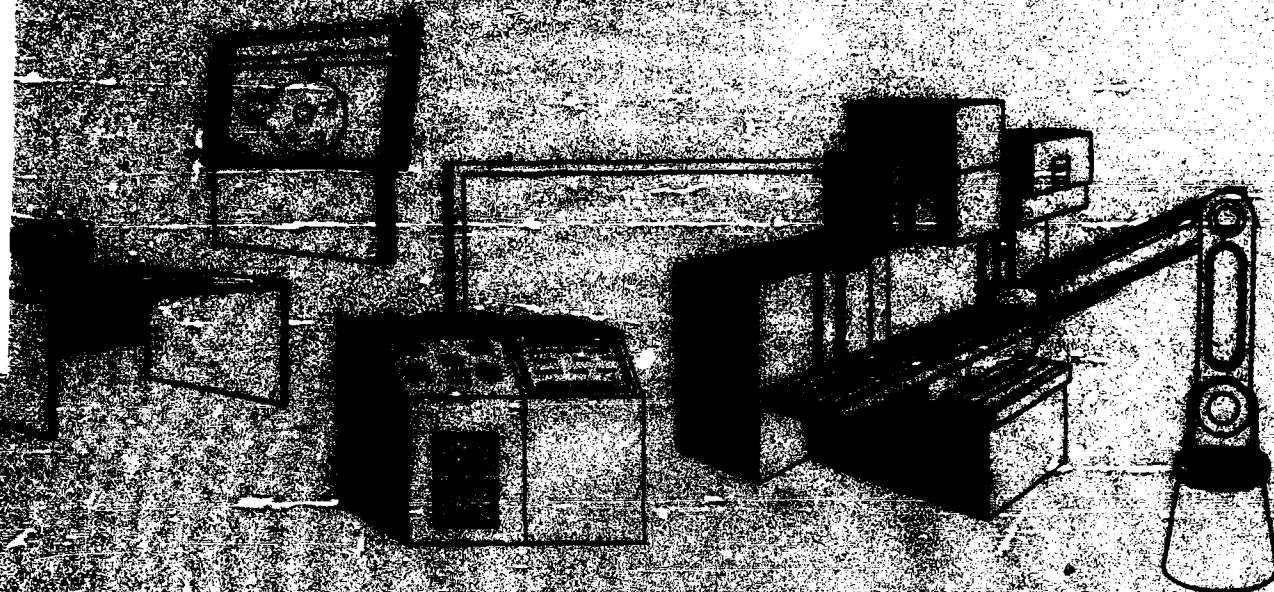




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AD-A198 081

U.S. ARMY MATERIAL COMMAND



# **SURVEY OF AMC OWNED COMPUTER AIDED PRODUCTION SYSTEMS**

**MAY 1988**

**DISTRIBUTION UNLIMITED, DOCUMENT FOR PUBLIC RELEASE**

**PREPARED BY  
NATIONAL SYSTEMS MANAGEMENT CORPORATION  
ARLINGTON, VA**

**FOR**

**U.S. ARMY INDUSTRIAL ENGINEERING ACTIVITY  
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## EXECUTIVE SUMMARY

This 1988 survey of U.S. Army Materiel Command (AMC) owned computer integrated manufacturing (CIM) equipment was initiated to update AMC CIM equipment data in all funding categories for the Fiscal Years 1980 through 1988 and to report on planned acquisitions for Fiscal Years 1989 through 1992. An analysis of available historical data for AMC Manufacturing Methods Technology (MMT) programs up through Fiscal Year 1979 indicated investments of just under 39 million dollars. The 39 million dollar amount was established as the baseline for this survey.

The data and supporting narrative information used to compile this report were solicited from more than 85 AMC activities which were selected to participate as either possible or probable owners of CIM equipment. Most of these activities are part of the nine Major Subordinate Commands (MSCs) which have as one of their primary missions, the responsibility for the acquisition of Army materiel and selected types of materiel for joint service use. Of these nine MSCs, the Armament, Munitions, and Chemical Command (AMCCOM), headquartered at Rock Island, Illinois, reported the largest investment in CIM equipment, approximately 268.5 million dollars. The second largest report of CIM equipment investment (78.8 million dollars) was provided by the Depot Systems Command (DESCOM), headquartered in Chambersburg, Pennsylvania. These two major dollar investments primarily reflect the AMCCOM mission to operate Army arsenals and ammunition plants and the DESCOM mission for all AMC depot facilities.

The total reported investment during the period of FY80 to FY88 has grown from the FY79 39 million dollar investment baseline to approximately 428.8 million dollars today, an eleven fold increase for the nine years. Planned investments for the FY89-92 timeframe are projected just under 20 million dollars, which will bring the AMC owned CIM equipment investment up to nearly 450 million dollars.

Currently, AMC activities report the 450 million dollar figure spread across 745 different CIM equipment systems, used for more than 800 different CIM related functions. Approximately 165 of these 745 systems are Computer Numeric Control (CNC) machines, normally considered as "stand alone" systems, not part of CIM architecture. These CNC machines are, however, included in this survey because an overwhelming number of respondents indicated that high priority has been given to procurement and installation of Distributed Numeric Control (DNC) systems for these CNC machines, which, when implemented, will provide interactive CIM network control.

#### ACKNOWLEDGMENT

The authors wish to express their thanks to all the engineering, equipment and program management members of the AMC community who contributed their time and talents to acquire the data needed for this survey. Particular appreciation is due for the extraordinary effort at Watervliet Arsenal to provide comprehensive CIM equipment data, the effort at the Production Base Modernization Agency for augmenting data from Army arsenals and ammunition plants, and the effort at DESCOM for coordinating the data collection efforts at Army depot activities.

ACRONYMS

MILITARY

AAF	Army Ammunition Plant
-----	
ALMC	Army Logistics Management Center
-----	
AMC	Army Materiel Command
-----	
AMCCOM	Armament, Munitions and Chemical Command
-----	
AMCSEL	AMC School of Engineering and Logistics
-----	
AMEC	Army Management Engineering College
-----	
APTD	Aviation Applied Technology Directorate
-----	
ARDEC	Armament, Research, Development and Engineering Center
-----	
ARO	Army Research Office
-----	
AUTOVON	Automatic Voice Network
-----	
AVSCOM	Aviation Systems Command
-----	
BRDEC	Belvoir Research, Development and Engineering Center

BRL	Ballistics Research Laboratory
-----	
CECOM	Communications Electronics Command
-----	
CRDEC	Chemical Research, Development and Engineering Center
-----	
CSDA-E	Central Systems Design Activity - East
-----	
CSLA	Communications Security Logistics Activity
-----	
CSTA	Combat Systems Test Activity
-----	
DESCOM	Depot System Command
-----	
DIR	Director
-----	
EMRA	Electronics Materiel Readiness Command
-----	
HDL	Harry Diamond Laboratories
-----	
HEL	Human Engineering laboratory
-----	
IEA	Industrial Engineering Activity
-----	
ISA	Installations and Services Activity
-----	
LABCOM	Laboratory Command

MICOM	Missile Command
-----	
MPBMA	Munitions Production Base Modernization Agency
-----	
MSC	Major Subordinate Command
-----	
MTL	Materials Technologies Laboratories
-----	
NRDEC	Natick Research, Development and Engineering Center
-----	
NVEOC	Night Vision and Electro-Optics Center
-----	
STLAAP	St. Louis Army Ammunition Plant
-----	
TACOM	Tank Automotive Command
-----	
TECOM	Test and Evaluation Command
-----	
TMDESPTGP	Test, Measurement, and Diagnostic Equipment Support Group
-----	
TROSCOM	Troop Support Command
-----	
USMA	United States Military Academy
-----	
-----	



## ACRONYMS

### TECHNICAL

ADV            Advanced

---

AMH-C        Automated Materials Handling - Controls

---

AMH-E        Automated Materials Handling - Equipment

---

ASRS         Automated Storage and Retrieval System

---

ATE          Automatic Test Equipment

---

CAD          Computer Aided Design

---

CAE          Computer Aided Engineering

---

CAI          Computer Aided Manufacture

---

CAM          Computer Aided Manufacturing

---

CAMBL        Continuous Automated Multi-Baseline

---

CAP          Computer Aided Packaging

---

CAQC         Computer Aided Quality Control

---

CAR          Computer Aided Robot

CAT            Computer Aided Test

---

CAW            Computer Aided Warehousing

---

CIM            Computer Integrated Manufacture

---

CNC            Computerized Numeric Control

---

CNTLS          Controls

---

CPU            Computer Processing Unit

---

DES            Design

---

DNC            Distributed Numeric Control

---

DPICM          Dual Purpose Improved Conventional Munitions

---

HMX            A Nitramine (NOCH) Compound for Explosive Application

---

IC             Integrated Circuit

---

LOVA           Low Vulnerability Ammunition

---

MAG            Magnetic

---

MMT            Manufacturing Methods and Technology

MOD	Modernization
-----	
MRP	Manufacturing Resource Planning
-----	
MUSALL	Term used to describe process employed for HMX manufacture
-----	
NC	Numeric Control
-----	
PCB	Printed Circuit Board
-----	
POC	Point of Contact
-----	
PROD	Production
-----	
PYRO	Pyrotechnic
-----	
CAQC	Computer Aided Quality Control
-----	
QL	Chemical Compound used for Binary Munitions
-----	
REARM	Army Program for Renovation of Armament Manufacturing
-----	
RDX	A Nitramine (NOCH) compound for explosive application
-----	
SCAMP	Small Caliber Ammunition Modernization Program
-----	
STA	Station

SYS

System

TDP

Technical Data Package

## DEFINITIONS

### Automated Materials Handling (AMH) Controls

AMH controls can be defined as the use of computer systems to store and automatically adjust inventory levels and material location data and; to control the movements of materials handling equipment from receiving areas to storage locations; and from storage locations to delivery points or shipping areas. The link between computer integrated manufacturing and AMH controls for warehousing is in the receipt and processing of demand data for material in storage to be pulled from stock and moved on computer command to one or more delivery points in the manufacturing area; and the extraction of completed or partially completed components and finished products to storage until required for product assembly or additional manufacturing steps or; to a shipping area for movement to another geographical location for additional manufacturing or for integration into a larger assemblage which becomes the final report.

-----

### Automated Materials Handling (AMH) Equipment

AMH equipment replaces or reduces human labor normally required to transport, store, retrieve, record and manipulate material throughout manufacturing and warehouse areas. Most common AMH equipment includes automated guided vehicles (AGVs) and conveyor systems, which transfer materials between workstations and feed the assembly and packaging processes. Automated storage and retrieval systems (ASRS) are high-density rack storage systems with rail running vehicles that serve the rack structure for automated loading and unloading. The ASRS can be computer-controlled to interface with robots, AGVs and conveyor systems.

-----

### Computer Aided Design (CAD)

CAD can be defined as the use of computer systems to assist in the creation, modification, analysis, or optimization of a design. The computer systems consist of hardware and software to perform the specialized design functions required by the particular user firm. The CAD hardware typically includes the computer, one or more graphics display terminals, keyboards, and other peripheral equipment. The CAD software consists of the computer programs to implement computer graphics on the system plus application programs to facilitate the engineering functions.

-----

### Computer Aided Design/Computer Aided Manufacture (CAD/CAM)

See Computer Aided Design (CAD) and Computer Aided Manufacture (CAM). CAD/CAM can be defined as the integration of of digital computer systems to achieve automation from a product's design through it's manufacture.

## Computer Aided Engineering (CAE)

CAE is the analysis of a design drawn from a CAD system. It is used to check for errors and optimize manufacturability, performance and economy of the design. CAE analyzes the functional characteristics of a part, product or system under design, and simulates performance under various conditions. CAE can be used to determine section properties, moments of inertia, shear and bending movements, dimensions and center of gravity, as well as precisely determined loads, vibration, noise and service life cycle early in the design cycle so that components can be optimized to meet those criteria.

-----

## Computer Aided Inspection (CAI)

Computer-Aided Inspection (CAI) and Computer-Aided Testing (CAT) are subsets of Computer Assisted Quality control (CAQC). Whereas these activities have traditionally been performed manually (with the help of gages, measuring devices, and testing apparatus), CAI and CAT are performed automatically using the latest computer and sensor technology. Computer-assisted inspection and testing methods form only part, certainly a major part, of computer-aided quality control.

-----

## Computer Aided Manufacture (CAM)

CAM can be defined as the use of computer systems to plan, manage, and control the operations of a manufacturing plant through either direct or indirect computer interface with the plant's production resources. As indicated by the definition, the applications of computer-aided manufacturing fall into two broad categories:

- o Computer monitoring and control. These are the direct applications in which the computer is connected directly to the manufacturing process for the purpose of monitoring or controlling the process.
  - o Manufacturing and support applications. These are the indirect applications in which the computer is used in support of the production operations in the plant, but there is no direct interface between the computer and the manufacturing process.
- 

## Computer Assisted Quality Control (CAQC)

CAQC is the computer programming and automated database with the primary functions of maintaining and reporting on all aspects of quality control in the manufacturing environment. The database normally contains all performance parameters an item must meet before, during and at the end of manufacture. The CAQC functions include the collection of data from all automated sources of manufacturing such as computer aided inspection and test devices. These data are processed to provide statistical reports of quality control measurements,

to identify actual and potential degradations of quality and to transmit corrective action instructions. CAQC also is a component of and interacts with CIM.

-----

#### Computer Aided Robot (CAR)

A robot is a programmable, multi-function manipulator designed to move material, parts, tools, or special devices through variable programmed motions for the performance of a variety of tasks. A CAR for industrial applications is a general-purpose, programmable machine which can possess certain anthropomorphic characteristics, typically, its arm. This arm, together with the robot's capacity to be programmed, makes it suitable for repetitive production tasks, e.g., machine loading, spot welding, spray painting and assembly.

-----

#### Computer Aided Testing (CAT)

See CAI-computer Aided Inspection

-----

#### Computer Integrated Manufacture (CIM)

CIM is usually referred to as the total integration of design and manufacturing processes into one fully computer controlled and supervised process. CIM can be described as an interactive database management system serving four major functional areas; 1) Business Management Operations, 2) Design and Manufacturing Engineering, 3) Manufacturing, and 4) Plant-Wide Auxiliary Functions.

-----

#### CIM- Architecture (CIM-A)

CIM-A can be defined as the computer integrated manufacturing architectural framework or structure that determines how the CIM system is constructed. CIM-A is normally developed through the processes of 1) identification of existing facilities, manufacturing capabilities and supporting resources; 2) the determination of the interrelationships between these capabilities; 3) the design of modules and interfaces among modules to support manufacturing processes and; 4) the implementation of architectural design plans for computer integrated manufacturing operation.

-----

#### Computer Numeric Control (CNC)

CNC is a numerical control system utilizing a dedicated small microcomputer with a reprogrammable memory to store program data and perform some or all of the basic numerical control functions.



## Direct Numerical Control (Direct NC)

Direct NC is the direct interactive connection and real time control of a number of machines by a single computer. The traditional tape reader is bypassed - normally removed - with part programming information transmitted directly to the machines from the computer memory. The computer and software programming are designed to transmit instructions to one or more machines on demand and; receive and process data from the machines.

-----

## Distributed Numerical Control (DNC)

The term DNC is now commonly used to refer to Distributed vs Direct numerical control systems. DNC can be defined in part as combined Direct NC/CNC systems. DNC systems provide direct interactive real time programming and data collection to and from microprocessors which provide direct control to machines. The microprocessors replace the traditional tape readers and offer much greater reliability. DNC systems offer much greater flexibility permitting totally different programming instructions to be generated and loaded in individual machine microprocess or control units. DNC systems provide an additional advantage of redundancy in the event of host computer failure or in the event of microprocessor failure at one or more machine locations operating on the same series of programming instructions.

-----

## Manufacturing Resource Planning (MRP)

MRP is a method for the effective planning of all the resources of a manufacturing company. It connects the complete set of functional subsystems found in most large business enterprises, including Business Planning, Production Planning, Master Production Scheduling, Material Requirements Planning, Capacity Requirements Planning and associated modules. Hence, it is often referred to as a "closed-loop" manufacturing system. The output from MRP is integrated with various financial reports, business plans, inventory and budget projections to enhance the effectiveness and analytical scope of the manufacturing management process.

-----

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SECTION 1.0

## SECTION 1.0

### INTRODUCTION

#### 1.1 GENERAL:

The 1988 survey of the Army Materiel Command's (AMC) computer integrated manufacturing (CIM) equipment provides a summary of computer systems and computer controlled machining and chemical compound processing equipment which support the production of AMC managed weapons systems and other military materiel.

This survey includes all AMC CIM equipment acquired during the first eight years of the 1980s. The survey reflects the accomplishments of AMC through nine Major Subordinate Commands (MSCs) during these years. In the case of the Armament, Munitions and Chemical Command (AMCCOM), separate presentations show accomplishments at arsenals and ammunition plants.

#### 1.2 BACKGROUND:

During the late 1950s and early 1960s, AMC began to acquire numerically controlled production equipment. The earliest recipients were the Arsenals. Army research and development (R&D) laboratories also obtained numerically controlled devices to study and perfect producibility design planning and manufacture demonstration models of future weapons systems. The introduction of robotics followed quickly, primarily in Army ammunition plants and depots. These robots were employed for materials handling, and performing repetitive and potentially hazardous operations such as the handling of explosive materiel, paint spraying, and welding of heavy vehicular equipment. In 1975, computerization of numerically controlled machinery started at Army arsenals engaged in the limited production of small caliber ammunition.

During the late 1970s and early 1980s computer aided manufacture (CAM), computer aided inspection (CAI) and computer aided testing (CAT) were introduced with the advent of the large scale ammunition production base modernization program. AMC's R&D laboratories began to acquire and employ the advanced technology and superiority offered by computer aided design (CAD) and computer aided engineering (CAE) devices. The overall cost of these ventures through 1979 is speculative; however, approximately \$38,566,000 of the total cost was financed by the Manufacturing Methods and Technology (MM&T) Program.

The preponderance of these computer aided devices were employed as stand-alone systems with little or no capability of interacting with one another. They did, however, serve to demonstrate that the potential advantages of improved productivity, safety and the elimination of repetitive labor intensive operations (to name a few), were clearly achievable. Yet to be solved were problems of computer hardware, firmware and software incompatibility. There was, and still is, a proliferation of systems in use operated by software, ideal for specialized purposes, but much less so for interactive communication with other special purpose systems. Part of the solution was to design systems and software according to evolving standards which in the 1960s and 70s were virtually nonexistent. Fortunately, among the proliferation of offerings, improved hardware and new software emerged which provided a capability for stand-alone operations to interact with one another. The next and logical step was to design manufacturing cells, groupings of

machines with similar functions, which could be controlled from a central computer source. Improvements to these operations led to the successful implementation of the second generation of centrally controlled manufacturing cells consisting of a series of different machines to manufacture a product or component of a larger product assemblage. Manufacturing cells have matured to the point that a physical grouping of machine tools and robots can be organized to produce a family of parts. This is now viewed as conventional automation. Computer control systems developed for these cells are now capable of receiving orders from an operator terminal, determine resources needed, schedule, coordinate and monitor individual workstations.

Manufacturing technology has now advanced sufficiently to permit the control and operation of a group of machines as flexible manufacturing systems (FMS). This FMS concept permits relatively rapid changes in shapes and sizes of generally similar type parts. The next (and perhaps most important) step for manufacturing is to design a fully automated manufacturing environment in which one or more computer systems can control all of the managerial, manufacturing and other supporting operations in both a centralized and flexible manner. This next step is computer integrated manufacturing. The CIM concept is the integration of design, engineering and manufacturing systems with traditional data processing systems serving managerial functions. This degree of integration produces the totally automated factory in which all processes are tied together by one or more common databases.

### 1.3 OBJECTIVE:

The principal objective of this survey was to report on all funding categories of AMC owned CIM systems and components comprising key elements of interactive CIM operations which are part of manufacturing or production facilities. The period covered by this survey is from the beginning of Fiscal Year (FY) 1980 through FY 1988. Figure 1-1 is an example of a manufacturing operation in which all elements of computer integrated equipment addressed in this report are shown. These elements are all between Point "A" and Point "B" on the diagram. The legend in the lower right corner of the chart defines each element.

The secondary objectives were to update available production equipment project data, (actual or planned) prior to FY80; identify projects which were rescheduled, cancelled or phased out; and, to report on approved plans for the future acquisition of CIM systems through FY92. Other objectives included the summarization of AMC accomplishments; compilation of the overall dollar value of investments in computer aided production technology and, break-outs of these data for AMC major subordinate commands, arsenals, ammunition plants and separate activities reporting directly to AMC.

CIM elements consist of computer assisted devices and equipment in the areas of design, engineering, manufacturing resource planning, control of quality standards, and incoming and outgoing materials handling equipment directly supporting production operations. CIM elements also include computer controlled robotic systems, in-process and post manufacture inspection and test equipment, and end of assembly area or production line packaging and shipping operations. Included as part of the principal objective were all items of computer assisted equipment normally found on the manufacturing floor or in direct support of production, regardless of actual location.

# COMPUTER INTEGRATED MANUFACTURING

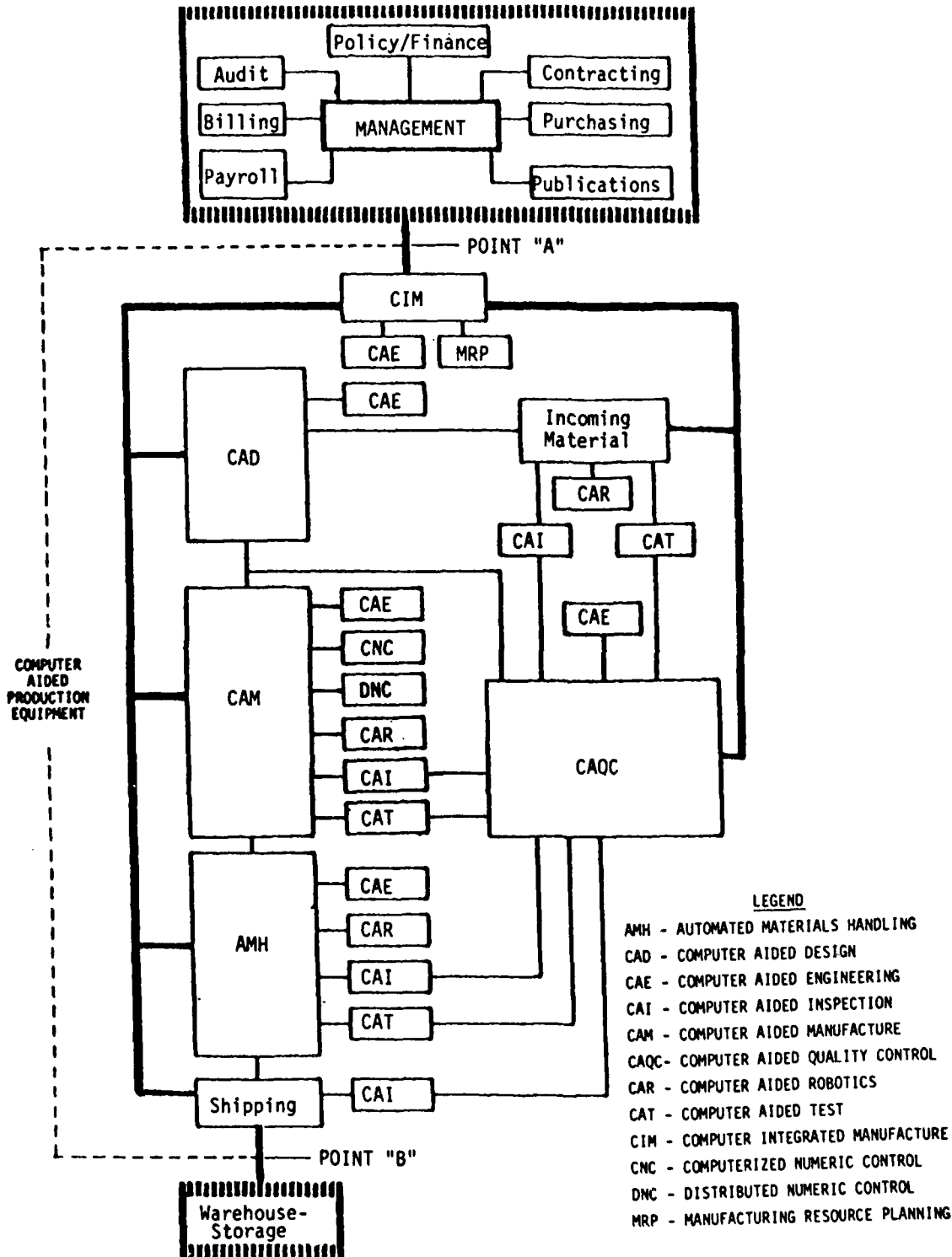


Figure 1-1

This survey also includes computer numerically controlled machinery, normally considered as "stand alone" equipment and not part of a true CIM network operation. Planning, however, (most notably at AMC arsenals and depots) is complete or underway, and in some instances actual conversions of equipment controls have started to convert computer numeric control (CNC) machines utilizing tape drive units to micro processors for machine controlling. The newer generation microprocessor controls permit machinery to be networked as part of distributed numeric control (DNC) systems and from there, inclusion in a CIM network. In every instance when queried, respondents to this survey indicated their installations are committed to DNC technology citing greatly improved reliability of machine control operation, elimination of human intervention to load machine control units (specifically the now outdated paper and mylar tape drive units), and the real time interactive exchange of control and performance data between machines, DNC stations and CIM mainframe computer terminals. With these CNC conversions planned or underway, this type of equipment is included in this survey. The inventory at Appendix 3 lists all components by equipment classification to show which of these equipment items are still operated as CNC machines.

#### 1.4 METHODOLOGY:

The methodology employed to acquire suitable data for analysis was to identify documentation prepared over the past several years which described computer aided production related accomplishments at AMC installations.

Computer aided assets to be included in the 1988 survey were identified as all AMC owned CIM devices "normally found on the manufacturing floor." All categories of funding were to be included. This category of CIM was further defined as any computer aided device which directly supported manufacturing, regardless of location. Not included were the purely managerial functions supported by computer systems which do not directly control manufacturing operations.

A series of system definitions were developed or extracted from engineering publications to define the specific categories of CIM to be included in the survey. A simplified schematic depicting the application of all CIM categories in a manufacturing environment was developed. The definitions, schematic, extracts of available data and a detailed questionnaire were provided to the AMC installation points of contact for their use during the data collection process.

Responses to these requests for CIM data were analyzed to determine applicability to the 1988 survey. These responses constituted the initial data base of inventory, funding and CIM application information. The data, grouped by AMC Major Subordinate Command (MSC) with further sub-grouping for Army Arsenals, Army Ammunition Plants and other selected installations were transposed to an inventory matrix for further analysis. This inventory matrix constituted the basis for the primary database of CIM information. From this data base listing, AMC and MSC summary charts and graphics were developed to list and illustrate CIM investments during the past eight years and planned investments up to FY92. In addition, these lists and graphics were designed to consolidate the information provided in the responses from the AMC installations into quantitative displays of CIM categories.

The inventory data, supporting lists and graphics constitute the enhanced baseline from which the narrative portions of this 1988 survey were developed.

SECTION 2.0



## SECTION 2.0

### AMC COMPUTER INTEGRATED MANUFACTURING (CIM) EQUIPMENT DISCUSSIONS

#### 2.1 TOTAL AMC CIM EQUIPMENT INVENTORY SUMMARY FY80-FY88:

AMC (with installations and offices in 195 locations) is organized into the headquarters located in Alexandria, Virginia, 12 MSCs and 90 Separate Reporting Activities (SRAs), and liaison and logistic assistance offices throughout the United States, Europe and the Far East. Virtually all AMC owned computer assisted manufacturing and production equipment reported in this survey is at AMC installations assigned to nine of the twelve MSCs as shown in Figure 2-1 which are responsible for a total of 105 installations. Responsibility for these installations is not evenly distributed between the MSCs with AMCCOM controlling 38 installations primarily arsenals and ammunition plants, and Depot Support Command (DESCOM) controlling 22 depots.

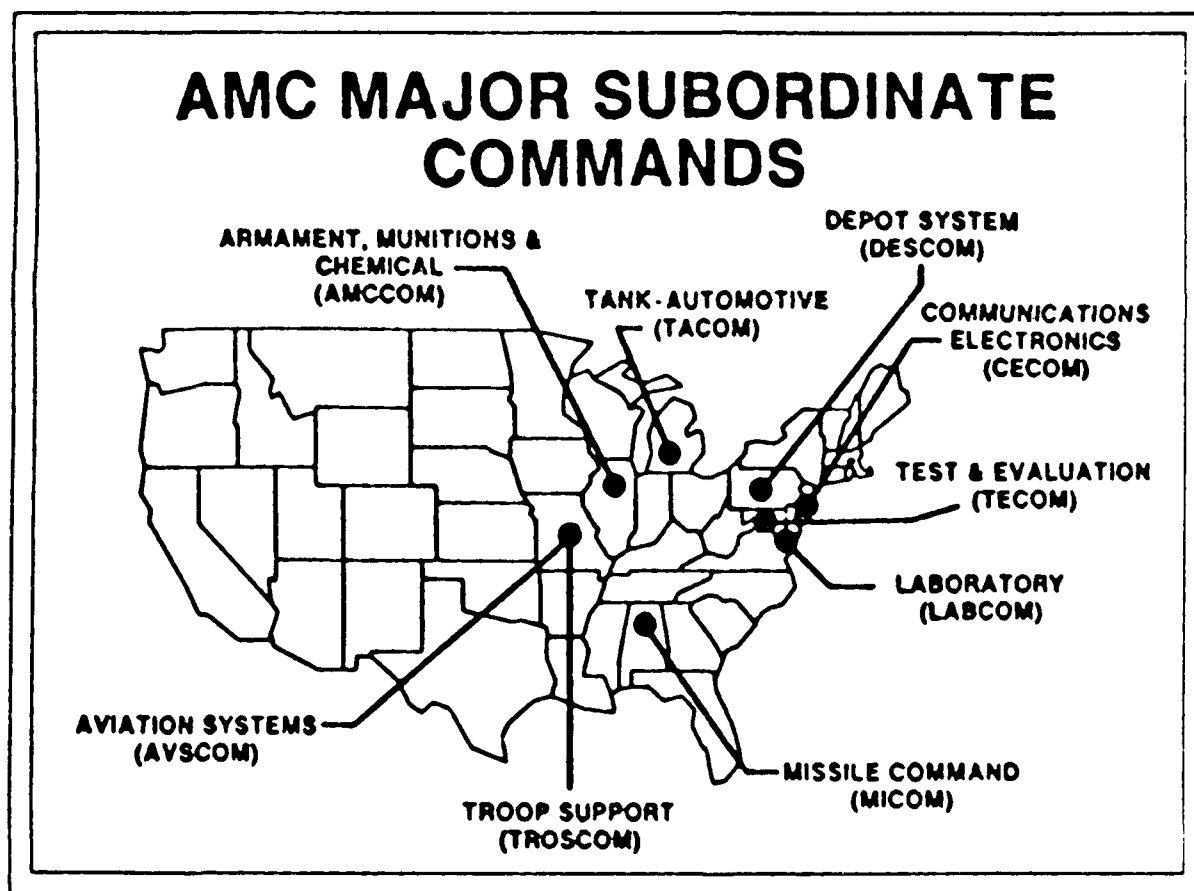


Figure 2-1

The data accumulated through the process described in the methodology was formatted as shown at the Appendices, pages A3-1 through A3-59. These

inventory formats contain a brief description of each CIM component, its acquisition date and cost, as well as a summarization of these data for each reporting installation. Some inventory data was not provided; therefore some systems lack vendor source identification, application or precise function data, such as computer aided design, manufacture, inspection or test. These systems, pertain to AMCCOM acquisitions, primarily those supporting Army Ammunition Plant (AAP) activities.

Figures 2-2 through 2-4 depict CIM component growth, investment and distribution for Fiscal Years 1980 - 1992. CIM component investment and quantity information (shown in the figures and tables summarizing the data received from AMC installations that participated in this survey) was extracted from the data and information listed in the inventory at Appendix 3, which shows all reported categories of utilization. Many of these reported items serve a dual or triple purpose. Examples of this which appear in the inventory are CAD/CAM for dual purpose use and CAD/CAE/CAM for triple applications. In those instances of dual and triple purpose use, the reported acquisition value of these multi-purpose systems was equally divided by 2 or 3 (as applicable) to indicate shared application. As an example, equipment with an acquisition value of \$312,600.00 reported as CAD/CAE/CAM system appears in the summary figures and charts as a CAD, a CAE and a CAM to reflect the shared application. Dollar amounts for a system such as this are divided to more closely reflect the purpose of investment. The \$312,600.00 example of a total acquisition value for a triple purpose system would be considered as an investment of \$104,200.00 for inclusion in each of the three categories of CAD, CAE and CAM. The total value of investments shown in the summary figures and tables for each of the nine AMC major subordinate commands is the same as shown in the inventory. In one instance, in Figure 2-4, the actual number of reported systems (745) is shown. The total number of system applications is, however, approximately 801, which was the number used to develop the figure. In this manner, a more accurate percentage of application and capability can be displayed.

Figure 2-2 shows the overall CIM investment growth for AMC. The dollar threshold is approximately \$486,000,000 which includes approximately \$39,000,000.00 as of the end of FY79. The growth curve extends through the end of FY92 with planned acquisitions of an additional \$19,988,400.00

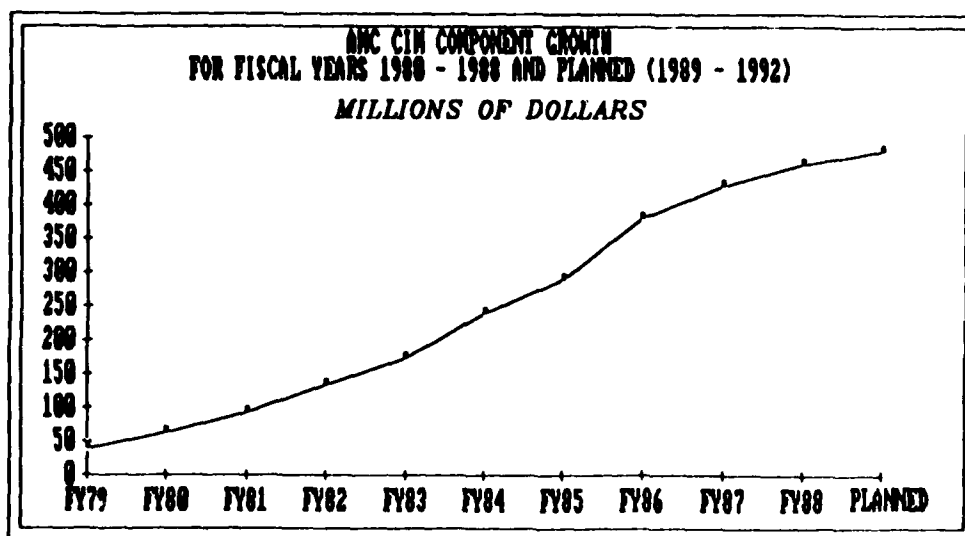


Figure 2-2

Figures 2-3 and 2-4 show CAM systems as the largest dollar investment component category (47 percent) with 38 percent of the reported inventory for these systems. This can be attributed to the fact that many installations reported the combined cost of the computer equipment along with the associated machine tool equipment, particularly in those instances where advanced technology includes imbedded computer aided devices. Conversely, the cost of the balance of the CIM components in many cases reflects only the stand alone computer and peripheral equipment investment.

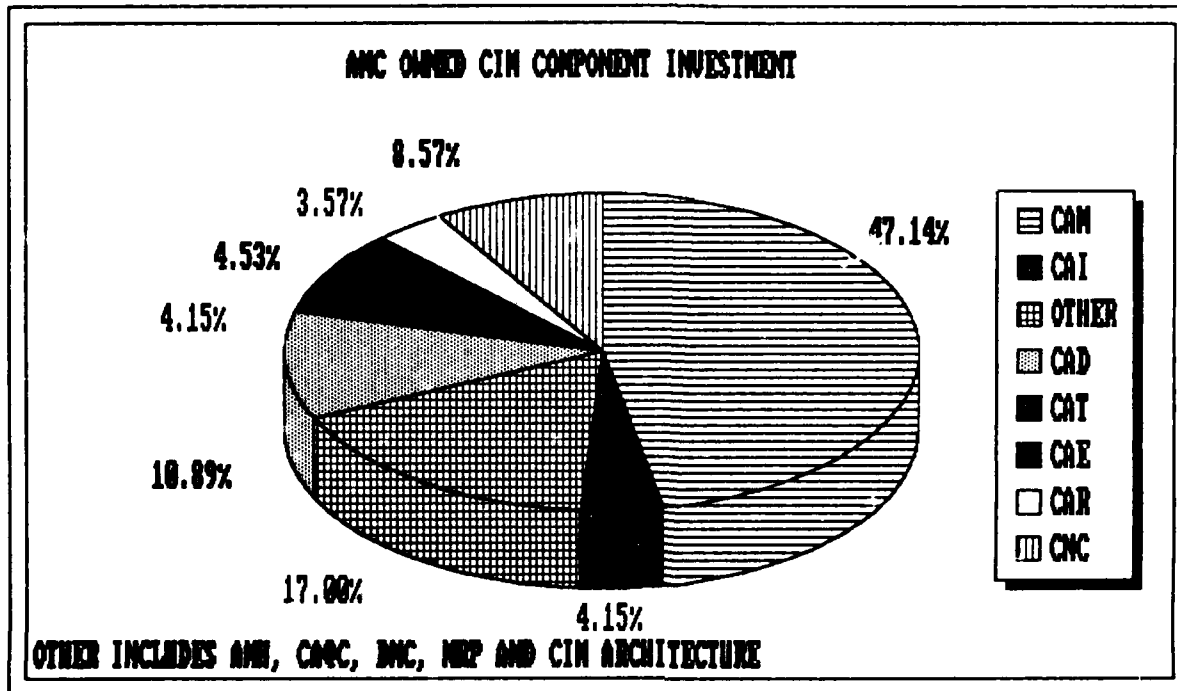


Figure 2-3

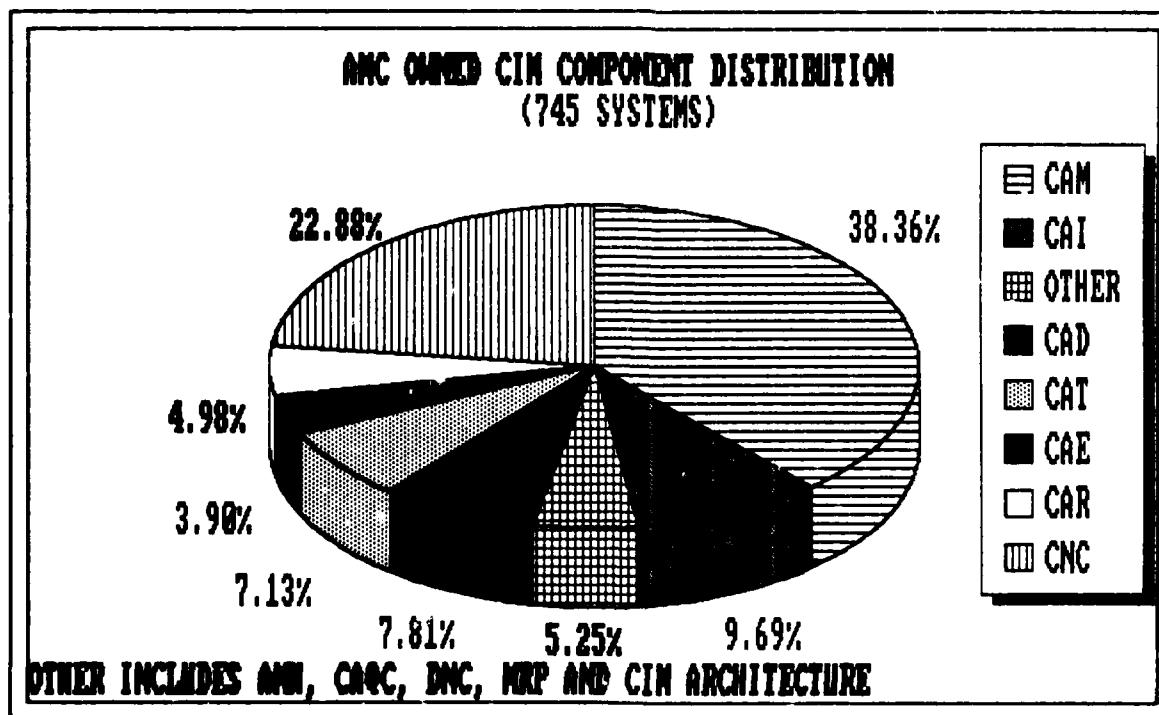


Figure 2-4

## 2.2 INVENTORY BY MAJOR SUBORDINATE COMMANDS:

AMCCOM has the largest CIM investment (\$268,473,700.00), followed by DESCOM with \$78,774,000.00; Communications-Electronics Command (CECOM) with \$28,496,000.00; the Aviation Systems Command (AVSCOM) with \$24,813,800.00 and; Tank Automotive Command (TACOM) with \$15,793,500.00. The balance of the MSCs trailed with smaller investments. With one exception, all reported CIM equipment is located at AMC installations. AVSCOM submitted CIM investment data for the Lycoming Army Engine Plant, Stratford, CT.

AMCCOM, having the largest number of reporting installations (26 Army Ammunition Plants, four production oriented Arsenals and other activities such as the Armament Research, Development and Engineering Center (ARDEC) and the Chemical Research, Development and Engineering Center (CRDEC)) reported the preponderance of AMC owned CIM equipment. Troop Support Command (TROSCOM), with approximately 90 percent of its annual program directed at the small business industry for general purpose Army materiel, reported the smallest investment. Laboratory Command (LABCOM), while primarily engaged in research and development activities, does maintain a small number of production oriented CAD/CAE systems and CNC machines for small batch production quantities, as well as small job shop functions.

## 2.3 CIM COMPONENT INVESTMENT APPLICATION AND BREAK OUT:

The data in Figure 2-5 represents a breakout by MSC of the CIM component dollar investment growth. The remaining Tables in Section 2 display CIM investments by various subordinate commands which replied to the information requested by the IEA call letters of 6 July 1987 and 20 August 1987.

The accumulated inventory data was transcribed into a summary chart (Figure 2-5) and Tables 2-1 through 2-15. Figure 2-5 on page 2-6 shows the FY80-88 CIM equipment growth at nine AMC subordinate commands. As can be seen, AMCCOM has the preponderance of CIM investment. Tables 2-1 through 2-15 on pages 2-7 through 2-16 depict the total AMC owned CIM inventory for the FY80-FY88 time frame. These 15 tables also reflect planned acquisitions for the FY80-FY92 time frame, with the exception of Tables 2-2 and 2-3 which reflect actual CIM component and application data for FY80 through FY88. The addition of planning year information in these two tables would be speculative at best.

The total reported accumulated investment over the eight year period was \$428,816,300.00. This is shown on Table 2-1 along with an AMC Major Subordinate Command (MSC) breakout of this total investment. The summarized data listed in Table 2-2 reflects the investment for 745 CIM component systems and is also listed by AMC MSC. Table 2-3 shows a total of 801 equipment applications as many systems have two or three applications. Equipment classifications including multiple classifications are listed for each reported equipment item or system in the inventory list at Appendix 3.

## 2.4 DESCOM, ASRS, MAJOR DISTRIBUTION CENTERS:

This inventory survey placed primary emphasis on gathering data for all AMC owned CIM equipment associated with production of military products, including the automated control of incoming raw material, components and subassemblies through the manufacturing and packaging functions prior to release of finished

items to supply operations. It did not focus on the AMC owned computer aided equipment in the automatic storage and retrieval systems (ASRS) functions at the distribution centers (major supply depots).

Along with the AMC multi-million dollar investment program to acquire CIM systems, a multi-year program is underway to construct and fully automate the supply operations at the Sharpe, Red River and New Cumberland Army Area Oriented Distribution (AOD) Centers with modern materials handling technology. At Sharpe, building construction is well underway for a new AOD center serving the Western United States and the Pacific region. Construction has started at New Cumberland for the new 40 acre Eastern AOD center serving the Eastern United States, Europe and the Near East. Construction of the new AOD center at Red River is currently planned for the second half of FY89 serving the Central United States the Caribbean region, Central and South America. The ultimate objective is to provide fully automated storage and retrieval systems in the three major supply distribution center depots by the year 2000.

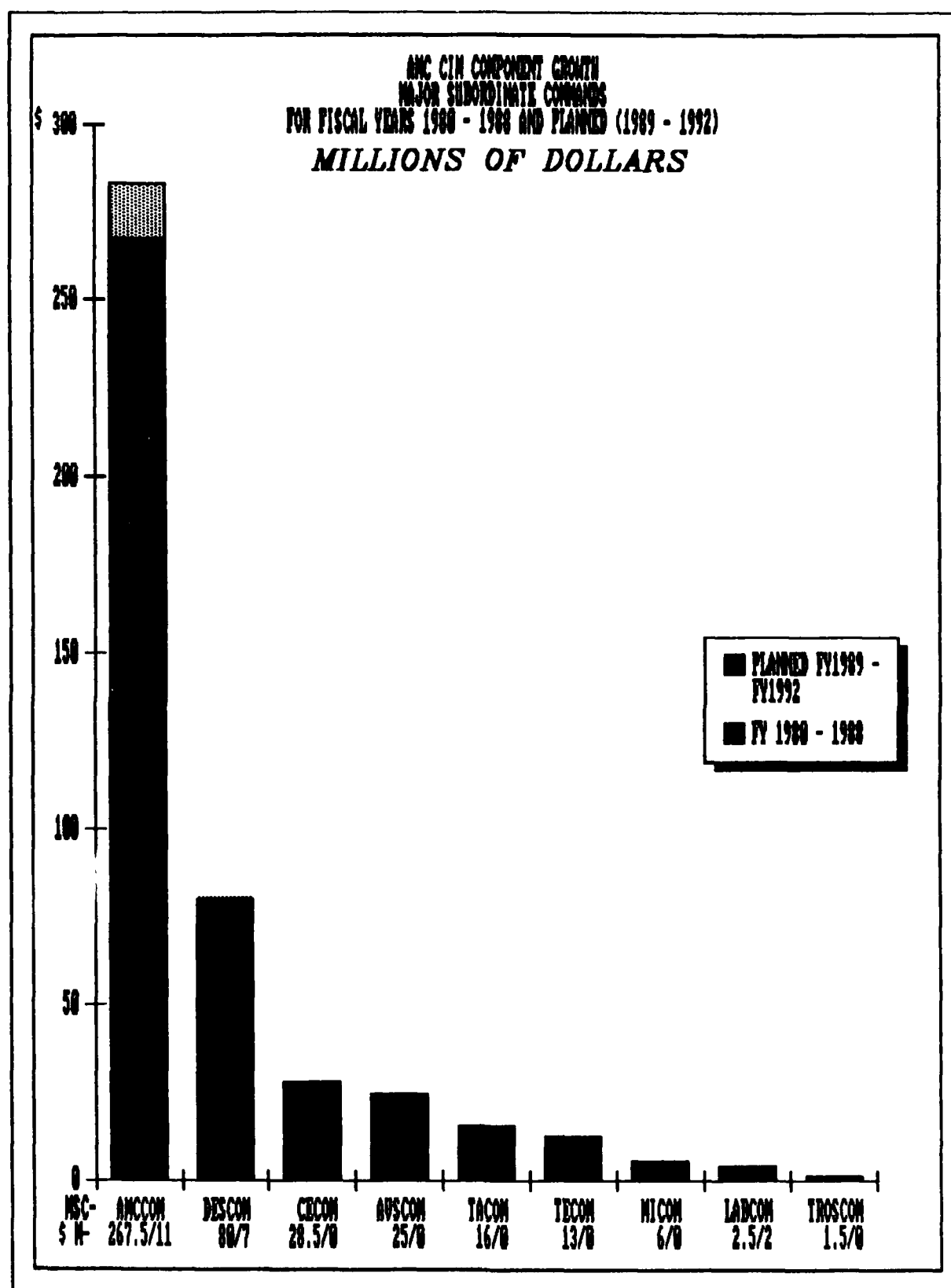


Figure 2-5

• • SUMMARY • •

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) EQUIPMENT  
MAJOR SUBORDINATE COMMANDS

INVESTMENT PER FISCAL YEAR IN DOLLARS (1000)

AMC MSCs	1980	1981	1982	1983	1984	1985	1986	1987	1988	LINE ITEM SUB-TOTAL	1989- 1992
AMCCOM	21,270.4	27,783.2	29,542.2	24,635.8	26,189.6	31,523.7	62,148.9	16,032.5	29,347.4	268,473.7	11,212.4
AVSCOM		877.6	1,015.8		22,300.0	60.0		560.4		24,813.8	
CECOM				6,900.0	10,446.0	5,650.0	5,500.0			28,496.0	
DESCOM	1,310.0	1,477.1	6,717.5	4,477.0	4,284.2	7,663.6	19,892.2	26,684.2	8,886.2	78,774.0	6,776.0
LABCOM			220.0		694.0	194.2	285.6	1,516.2	174.0	2,408.0	2,000.0
MICOM	365.0	900.0		454.0		3,405.0			2,000.0	7,124.0	
TACOM	500.0		1,705.0	3,893.5	2,212.0	1,503.0	2,480.0	3,500.0		15,793.5	
TECOM			1,189.2		203.0					1,392.2	
TROSCOM			743.2		235.9	61.0	68.0	164.0	273.0	1,541.1	
AMC TOTALS	23,445.4	31,037.9	41,132.7	40,360.3	65,870.7	50,060.5	90,374.7	48,456.9	40,660.6	428,816.3	19,988.4

Table 2-1



\* \* SUMMARY \* \*

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) EQUIPMENT

MAJOR SUBORDINATE COMMANDS

COMPONENT INVESTMENT FOR FISCAL YEARS 1980 THROUGH 1988

AMC MSCs	CAD	CAE	CAI	CAM	AMH EQUIPMENT	CAQC	CAR	CAT	AMH CONTROLS	CNC	DNC	CIM	MRP
AMCCOM	6,063.0	1,070.1	11,378.0	115,240.8	4,550.0	1,010.0	3,121.0	3,396.0	5,813.8	26,179.3	4,666.7	5,956.0	746.0
AVSCOM	5,575.0	5,575.0		6,281.8	5,575.0			484.1	5,575.0		1,469.3		
CECOM	5,027.0			23,469.0									
DESCOM	5,422.2	4,020.1	421.0	27,923.2	9,000.0		12,052.9	19,092.0	913.0	2,767.6			10,151.0
LABCOM	385.0	325.0	1,024.0	1,661.0									
MICOM	1,100.0		1,325.0	5,398.0						130.5			
TACOM	10,034.0		1,886.0	3,443.0				1,189.2		203.0			
TECOM							228.0						
TRSCOM	301.0			1,043.1									
AMC TOTALS	33,907.3	10,990.2	16,234.0	184,459.9	19,125.0	1,010.0	15,401.9	25,649.3	12,301.8	29,280.4	6,136.0	5,956.0	10,897.0

\* COMPUTER INTEGRATED MANUFACTURING ARCHITECTURE

Table 2-2

\*\*\* SUMMARY \*\*\*

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) EQUIPMENT

COMPONENT APPLICATION BY MAJOR SUBORDINATE COMMAND

AMC MSCs	CAD	CAE	CAI	CAM	AMH EQUIP	CADC	CAR	CAT	AMH CNTLS	CNC	DNC	* CIM	MRP
AMCCOM	33	19	68	249	1	1	13	6	1	54	1	3	1
AVSCOM	1	1		4	1			3	1	2	4		
CECOM	1			5									
DESCOM	15	5	3	80	2		19	43	2	93	1		2
LABCOM	5	4		6						10			
MICOM	1		2	6			1						
TACOM	7		1	3						1			
TECOM	1							1					
TROSCOM	4			1			4			6			
AMC TOTALS	68	29	74	355	4	1	37	53	4	165	6	3	3

\* COMPUTER INTEGRATED MANUFACTURING ARCHITECTURE

Table 2-3

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) EQUIPMENT

PLANNED

INVESTMENT PER FISCAL YEAR IN DOLLARS (1000)

AMCCOM ACTIVITIES	1980	1981	1982	1983	1984	1985	1986	1987	1988	SUB TOTAL	1989 - 1992
AMCCOM					180.0					180.0	
ARDEC							3,000.0	4,200.0	6,600.0	13,800.0	
CRDEC						750.0	940.0	1,341.0	1,681.0	4,712.0	
SUB-TOTALS (1)					180.0	750.0	3,940.0	5,541.0	8,281.0	18,512.0	

Table 2-4

AMCCOM ARSENALS	1980	1981	1982	1983	1984	1985	1986	1987	1988	SUB TOTAL	1989 - 1992
PINE BLUFF		7,202.5					6,200.0			13,402.5	
ROCK ISLAND	150.0	1,141.0	2,039.0	399.0	3,740.0	877.0				8,344.0	
ROCKY MOUNTAIN		NEGATIVE REPORT									
WATERVLIET	9,197.4	16,598.7	21,250.2	19,748.7	21,593.2		5,849.4	5,701.7	6,356.4	129,446.1	4,833.0
SUB-TOTALS (2)	9,347.4	24,942.2	23,289.2	20,147.7	25,333.2	24,027.3	12,049.4	5,701.7	6,356.4	151,192.6	4,833.0

Table 2-5

AMCCOM AMMO PLANTS	1980	1981	1982	1983	1984	1985	1986	1987	1988	SUB TOTAL	1989 - 1992
BADGER	NEGATIVE REPORT										
CORNHUSKER	NEGATIVE REPORT										
HAWTHORNE	NEGATIVE REPORT										
HOLSTON						609.0	351.0		170.0	1,130.0	
INDIANA				24.0	278.0					302.0	384.4
IONA		1,298.0	1,985.0	1,817.0		180.0		630.0	130.0	5,940.0	2,770.0
JOLIE	REPORTED MOBILIZATION CONTINGENCY PLANS ONLY										
KANSAS	NEGATIVE REPORT										
LAKE CITY						1,401.0	9,460.0			10,86.0	1,318.0
LINE STAR		22.0	108.0		305.2	25.7	33.0	212.0	90.0	759.9	650.0
LONGHORN		22.0	108.0	2,990.0	329.2	3,992.7	5,035.5	212.0	180.0	12,869.4	
LOUISIANA	35.0	912.0	4,220.0	10.0	18.0		746.0	3,061.8	4,130.0	13,132.8	124.0
MCLESTER							18.0	70.0	10.0	98.0	
MILAN							400.0	384.0		784.0	
MISSISSIPPI							26,020.0			26,020.0	133.0
NEWPORT							4,800.0			4,800.0	
RADFORD	10,590.0			1,484.0		260.0				12,338.0	
RAVENNA	NEGATIVE REPORT										
RIVERBANK									8,000.0	8,000.0	
SCRANTON							5,440.0			5,440.0	
ST. LOUIS	NEGATIVE REPORT										
SUNFLOWER											1,000.0
TWIN CITIES	NEGATIVE REPORT										
VOLUNTEER	REPORTED MOBILIZATION CONTINGENCY PLANS ONLY										
CRANE ACTIVITY							56.0			56.0	
SUB-TOTALS (3)	11,923.0	2,841.0	6,253.0	4,484.0	676.4	6,746.4	52,359.5	4,789.8	14,710.0	96,827.1	6,379.4

Table 2-6

AMCCOM INSTALLATIONS	1980	1981	1982	1983	1984	1985	1986	1987	1988	SUB TOTAL	1989 - 1992
AMCCOM TOTALS (1) + (2) + (3)	21,270.0	27,783.2	29,542.2	24,635.8	26,189.6	31,523.7	62,148.9	16,032.5	29,347.4	268,473.7	11,212.4

Table 2-7

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) EQUIPMENT

INVESTMENT PER FISCAL YEAR IN DOLLARS (1000)

PLANNED

AVSCOM INSTALLATIONS	1980	1981	1982	1983	1984	1985	1986	1987	1988	SUB TOTAL	1989 - 1992
STRATFORD ARMY ENGINE PLANT		877.6	1,015.8		22,300.0	60.0		560.4		23,813.8	
AVSCOM TOTALS		877.6	1,015.8		22,300.0	60.0		560.4		23,813.8	

Table 2-8

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) EQUIPMENT

INVESTMENT PER FISCAL YEAR IN DOLLARS (1000)

PLANNED

CECOM INSTALLATIONS	1980	1981	1982	1983	1984	1985	1986	1987	1988	SUB TOTAL	1989 - 1992
CECOM			6,900.0	10,446.0	5,650.0	5,500.0				28,496.0	
CECOM TOTALS			6,900.0	10,446.0	5,650.0	5,500.0				28,496.0	

Table 2-9

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) EQUIPMENT

INVESTMENT PER FISCAL YEAR IN DOLLARS (1000)

PLANNED

DESCOM DEPOTS	1980	1981	1982	1983	1984	1985	1986	1987	1988	SUB TOTAL	1989 - 1992
ANNISTON			494.4	1,307.0	636.5	4,056.6	1,751.2	1,946.2	2,640.0	12,831.9	
CORPUS CHRISTI		920.0	1,501.0	353.0	490.0		1,974.5	1,100.0	290.0	6,628.5	
LETTERKENNY			410.0	252.2	1,036.4			11,251.0		12,949.6	
LEXINGTON-BLUE GRASS							179.3		360.0	539.3	
MAINZ		221.1								221.1	
RED RIVER				790.0	540.0	379.0	9,491.0			11,200.0	
SACREMENTO				1,120.2			11,400.0			2,520.2	
SAVANNA				323.0						323.0	
SHARPE					190.0			8.0	15.0	213.0	
SIERRA						114.0				114.0	
TOOELE		230.0	358.1	160.8	743.3	1,494.0	3,491.4	2,126.0	1,090.0	9,693.6	3,676.0
TOBYHANNA	1,310.0	106.0	3,954.0	170.0	684.0	1,620.0	1,605.0	11,317.0	2,200.2	28,930.0	3,100.0
DESCOM TOTALS	1,310.0	1,477.1	6,717.5	4,477.0	4,284.2	7,663.6	19,892.2	26,648.2	79,273.9	78,774.0	6,776.0

Table 2-10

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) EQUIPMENT

INVESTMENT PER FISCAL YEAR IN DOLLARS (1000)

PLANNED

LABCOM INSTALLATIONS	1980	1981	1982	1983	1984	1985	1986	1987	1988	SUB TOTAL	1989 - 1992
HARRY DIAMOND LABORATORIES						194.2	215.6	720.0	174.0	1,303.8	2,000.0
TOOLE TOBYHANNA LETTERKENNY			220.0				70.0	778.2		1,068.2	
LABCOM TOTALS			220.0			194.2	285.6	1,498.2	174.0	2,372.0	2,000.0

Table 2-11

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) EQUIPMENT

INVESTMENT PER FISCAL YEAR IN DOLLARS (1000)

PLANNED

MICOM INSTALLATIONS	1980	1981	1982	1983	1984	1985	1986	1987	1988	SUB TOTAL	1989 - 1992
MICOM	365.0	900.0		454.0		3,405.0			2,000.0	7,124.0	
MICOM TOTALS	365.0	900.0		454.0		3,405.0			2,000.0	7,124.0	2,000.0

Table 2-12

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) EQUIPMENT

INVESTMENT PER FISCAL YEAR IN DOLLARS (1000)

PLANNED

TACOM INSTALLATIONS	1980	1981	1982	1983	1984	1985	1986	1987	1988	SUB TOTAL	1989 - 1992
TACOM	500.0		1,705.0	3,893.5	2,212.0	1,503.0	2,480.0	3,500.0		15,793.5	
DETROIT ARSENAL TANK PLANT	NO REPORT										
LIMA TANK PLANT	NO REPORT										
TACOM TOTALS	500.0		1,705.0	3,893.5	2,212.0	1,503.0	2,480.0	3,500.0		15,793.5	

Table 2-13

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) EQUIPMENT

INVESTMENT PER FISCAL YEAR IN DOLLARS (1000)

PLANNED

TECOM INSTALLATIONS	1980	1981	1982	1983	1984	1985	1986	1987	1988	SUB TOTAL	1989 - 1992
COMBAT SYS TEST ACTIVITY					203.0					203.0	
YUMA PROVING GROUND			1,189.2							1,189.2	
TECOM TOTALS			1,189.2		203.0					1,392.2	

Table 2-14



ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) EQUIPMENT  
INVESTMENT PER FISCAL YEAR IN DOLLARS (1000)

PLANNED

	1980	1981	1982	1983	1984	1985	1986	1987	1988	SUB TOTAL	1989 - 1992
TROSCOM INSTALLATIONS											
BELVOIR RESEARCH, DEVELOPMENT & ENGINEERING CENTER			743.2		235.9	61.0	68.0	145.0	35.0	1,288.1	
NATICK RESEARCH, DEVELOPMENT & ENGINEERING CENTER								19.0	238.0	257.0	
TROSCOM TOTALS			743.2		235.9	61.0	68.0	164.0	273.0	1,541.1	

Table 2-15

APPENDIX 1

COMPUTER AIDED PRODUCTION EQUIPMENT (CAPE)

POINTS OF CONTACT

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS

COMMERCIAL (C)

AUTOVON (AV)

U.S. Army Materiel Command  
ATTN: AMCPD  
Alexandria, VA 22333-0001

C: (202)274-8211

AV: 284-8211

POC: William Jenkins

---

U.S. Army Materiel Command  
Logistics Management Center  
ATTN: AMXMC  
Ft. Lee, VA 23801-6040

C: (804)734-1268

AV: 687-1268

POC: SFC Neville Chambers

---

U.S. Army Materiel Command  
School of Engineering and Logistics  
ATTN: AMXMC-SEL-E  
Texarkana, TX 75501-5000

C: (214)838-2001

AV: 829-2001

POC: Mickey Carter

---

U.S. Army Materiel Command  
Central Systems Design Activity-East  
ATTN: AMXLS-LGR  
Chambersburg, PA 17201-4180

C: (717)267-9131

AV: 570-9131

POC: Donald Cotabish

---

U.S. Army Materiel Command  
U.S. Army Test, Measurement and Diagnostic Equipment  
Support Group  
ATTN: AMXTM-R  
Redstone Arsenal, AL 35898-5000

C: (205)876-1133

AV: 746-1133

POC: Joseph M. Rivamonte

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS  
COMMERCIAL (C)  
AUTOVON (AV)

U.S. Army Materiel Command  
Industrial Engineering Activity  
ATTN: AMXIB-PS  
Rock Island, IL 61299-7260

C: (309)782-3682

AV: 793-3682

POC: Gaylen Fischer

---

U.S. Army Materiel Command  
Army Management Engineering College  
ATTN: AMXOM-SE  
Rock Island, IL 61299-7040

C: (309)782-4041

AV 793-4041

POC: Alvin Takemoto

---

U.S. Army Materiel Command  
Installations and Services Activity  
ATTN: AMXEN  
Rock Island, IL 61299-7040

C: (309)782-4425

AV: 793-4425

POC: Jim McAtee

---

U.S. Army Information Systems Command-AMCCOM  
ATTN: ASNC-ARI-TW  
Rock Island, IL 61299-6000

C: (309)782-2918

AV: 793-2918

POC: Ralph W. Christison

---

U.S. Army Information Systems Command-AMCCOM  
ATTN: ASNC-ARI-I  
Rock Island, IL 61299-6000

C: (309)782-3061/4533

AV: 793-3061/4533

POC: Harold DeFrieze

---

U.S. Army Armament, Munitions and Chemical Command  
Armament Research, Development and Engineering Center  
ATTN: SMCAR-ESW-D  
Rock Island, IL 61299-7300

C: (309)782-5778

AV: 793-5778

POC: Larry McClimans

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS

COMMERCIAL (C)

AUTOVON (AV)

U.S. Army Information Systems Command  
Armament Research, Development and Engineering Center  
ATTN: ASNC-APT-I  
Picatinny, NJ 07806-5000

C: (201)724-7814

AV: 880-7814

POC: Wayne Lunger

U.S. Army Armament, Munitions and Chemical Command  
Chemical Research, Development and Engineering Center  
ATTN: SMCCR-SPE  
Aberdeen Proving Ground, MD 21010-5423

C: (301)278-7814/3873

AV: 298-2298/3873

POC: Frank J. Batelka

U.S. Army Armament, Munitions and Chemical Command  
Munitions Production Base Modernization Agency  
ATTN: AMSMC-PBT-I(D)  
Picatinny, NJ 07801-5000

C: (201)724-4221/5323

AV: 880-4221/5323

POC: John Carter  
Ferdinand DelCarter

Pine Bluff Arsenal  
ATTN: SMCPB-IMP  
Pine Bluff, AR 71602-9500

C: (501)543-3066

AV: 966-3066

POC: David Gibbons

Rock Island Arsenal  
ATTN: SMCRI-APR  
Rock Island, IL 61299-5000

C: (309)782-5804

AV: 793-5804

POC: Steve Robinson

Rocky Mountain Arsenal  
ATTN: SMC RM-IS-M  
Commerce City, CO 80022-2181

C: (303)289-0339

AV: 556-2339

POC: Lyle Tracy

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS  
COMMERCIAL (C)  
AUTOVON (AV)

Watervliet Arsenal  
ATTN: SMCWV-PPI  
Watervliet, NY 12189-4050

C: (518)266-5318/5319

AV: 974-5318/5319

POC: Bill Garber

-----

Badger Army Ammunition Plant  
ATTN: SMCBA-OR  
Baraboo, WI 53913-5000

C: (608)643-3361  
(608)356-5525

AV: 280-9328

POC: Kenneth R. Tesch  
Donald L. Hartman

-----

Cornhusker Army Ammunition Plant  
ATTN: SMCCO-CR  
Grand Island, NE 68801-2041

C: (308)382-2130

AV: 939-3690

POC: William Talmon

-----

Hawthorne Army Ammunition Plant  
ATTN: SMCHW  
Hawthorne, NV 89416-5000

C: (702)945-7900

AV: 830-7900

POC: Wally Elbe

-----

Holston Army Ammunition Plant  
ATTN: SMCHO  
Kingsport, TN 37660-9982

C: (615)247-9111  
Ext. 3770

AV: 748-3770

-----

Indiana Army Ammunition Plant  
ATTN: SMCIN-EN  
Charlestown, IN 47111-9667

C: (812)284-7717

AV: 366-7717

POC: Steven J. Duncan

INSTALLATION/POINT OF CONTACTTELEPHONE NUMBERSCOMMERCIAL (C)AUTOVON (AV)

Iowa Army Ammunition Plant  
ATTN: SMCIO-EN  
Middletown, IA 52638-5000

C: (319)753-7101

AV: 585-7101

POC: Victor A. Favati  
Leon D. Baxter

Joliet Army Ammunition Plant  
ATTN: SMCJO  
Joliet, IL 60436-5000

C: (815)424-2106

AV: 696-2106

POC: Patricia Muzzarelli

Kansas Army Ammunition Plant  
ATTN: SMCKA-CE  
Parsons, KS 67357-9107

C: (316)421-7450

AV: 956-1450

POC: Don Dailey

Lake City Army Ammunition Plant  
ATTN: SMCLC-EN  
Independence, MO 74056-0330

C: (816)796-7178

(816)796-7141

POC: Royce Akers  
Darlene Crane

AV: 463-9178

463-9141

Lone Star Army Ammunition Plant  
ATTN: SMCLS-EN  
Texarkana, TX 75505-9101

C: (214)334-1305

AV: 829-1305

POC: Madison Bagley

Longhorn Army Ammunition Plant  
ATTN: SMCLO-EN  
Marshall, TX 75671-1059

C: (214)679-2613

AV: 956-2613

POC: Don E. Maley

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS

COMMERCIAL (C)

AUTOVON (AV)

Louisiana Army Ammunition Plant  
ATTN: SMCLA-EN  
Shreveport, LA 71130-5000

C: (318)459-5405

AV: 637-5405

POC: Lee Hu

-----

McAlester Army Ammunition Plant  
ATTN: SMCMA-AOE  
McAlester, OK 74501-5000

C: (918)421-2237

AV: 956-6237

POC: David Franks, Jr.

-----

Milan Army Ammunition Plant  
ATTN: SMCMI-EN  
Milan, TN 38358-5000

C: (901)686-6524

AV: 966-6254

POC: Britt Locke

-----

Mississippi Army Ammunition Plant  
ATTN: SMCMS-EN  
Picayune, MS 39446-5000

C: (601)467-8930

AV: 466-8930

POC: William Austill

-----

Newport Army Ammunition Plant  
ATTN: SMCNE  
Newport, IN 47966-0121

C: (317)245-4579/4341

AV: 634-1591  
Ext. 579/341

POC: Louis Pilopovich

-----

Radford Army Ammunition Plant  
ATTN: SMCRA-CAP  
Radford, VA 24141-0298

C: (703)639-8602/8605

AV: 931-8602/8605

POC: Harold D. Stout  
Iris Williams



INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS  
COMMERCIAL (C)  
AUTOVON (AV)

Ravenna Army Ammunition Plant  
ATTN: SMCRV  
Ravenna, OH 44266-9297

C: (216)297-3124  
AV: 346-3124

POC: Robert J. Kasper

-----

Riverbank Army Ammunition Plant  
ATTN: SMCRB  
Riverbank, CA 95367-0678

C: (209)529-8100  
Ext. 237

POC: James Gansel

AV: 466-4100  
Ext. 237

-----

Scranton Army Ammunition Plant  
ATTN: SMCS-EN  
Scranton, PA 18505-1138

C: (717)342-7801  
AV: 247-1357

POC: Bernard White

-----

St. Louis Army Ammunition Plant  
ATTN: SMCSL  
St. Louis, MO 63120-1584

C: (314)263-3842  
AV: 693-3842

POC: Meryl Humphries

-----

Sunflower Army Ammunition Plant  
ATTN: SMCSU-OR  
DeSoto, KS 66018-0640

C: (913)791-6813  
AV: 720-6183

POC: Dick Jackley

-----

Twin Cities Army Ammunition Plant  
ATTN: SMCTC  
New Brighton, MN 55112-5000

C: (612)633-2301  
Ext. 664

POC: Ellen Tillman

AV: 798-1500  
Ext. 664

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS

COMMERCIAL (C)

AUTOVON (AV)

Volunteer Army Ammunition Plant  
ATTN: SMCVO-CR  
Chattanooga, TN 37422-2607

C: (615)855-7113

AV: 588-9113

POC: Wally N. Henry

-----

Crane Army Ammunition Activity  
ATTN: SMCCN-RMM  
Crane, IN 47522-5099

C: (812)854-1891

AV: 482-1891

POC: Dan Todd

-----

U.S. Army Aviation Systems Command  
ATTN: AMSAV-EMC  
St. Louis, MO 63120-1798

C: (314)263-3079

AV: 693-3079

POC: Oscar Gomez

-----

Aviation Research and Technology Activity  
Aviation Applied Technology Directorate  
ATTN: SAVRT-TY  
Ft. Eustis, VA 23604-5577

C: (804)878-3369

AV: 927-3369

POC: Betty Goad

-----

U.S. Army Plant Representative  
Bell Helicopter Textron  
ATTN: SAVBE-A  
Fort Worth, TX 76101-1605

C: (817)280-7015

AV: 477-7015

POC: Allen Klein

-----

U.S. Army Plant Representative Office  
Boeing-Vertol Company  
ATTN: SAVBV-A  
Philadelphia, PA 19142-0859

C: (215)591-8557

AV: 444-3817

POC: Robin K. Bachman

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS

COMMERCIAL (C)

AUTOVON (AV)

U.S. Army Plant Representative Office  
Hughes Helicopters  
ATTN: SAVHU-A  
Culver City, CA 90230-6370

C: (213)305-5006

AV: 348-5006

POC: Malcolm Thomas

-----

U.S. Army Plant Representative Office  
McDonald Douglas  
ATTN: SAVMD-A  
Mesa, AZ 85205-9797

C: (602)891-3335/3923

AV: 474-3335/3923

POC: Michael R. Pendergrass

-----

U.S. Army Communications-Electronics Command  
ATTN: AMSEL-PC-SI  
Ft. Monmouth, NJ 07703-5201

C: (201)532-4996

AV: 992-4996

POC: James Kelly

-----

U.S. Army Communications-Electronics Command  
Center for Night Vision and Electro-Optics  
ATTN: SMSEL-RD-NV  
Ft. Belvoir, VA 22060-5677

C: (703)664-5683

AV: 354-5683

POC: Steve Holt

-----

U.S. Army Communications-Electronics Command  
Communications Security Logistics Activity  
ATTN: SELCL-IM  
Ft. Huachuca, AZ 85613-7090

C: (602)538-6196

AV: 879-6196

POC: Ed Hosse

-----

U.S. Army Communications-Electronics Command  
Center for Signals Warfare  
ATTN: AMSEL-RD-SW  
VHFS, Warrenton, VA 22186-5141

C: (703)347-6335

AV: 249-6335

POC: SSG R. Griffin

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS

COMMERCIAL (C)

AUTOVON (AV)

U.S. Army Communications-Electronics Command  
Electronic Materiel Readiness Activity  
ATTN: SELEM  
VHFS, Warrenton, VA 22186-5141

C: (703)347-6665

AV: 249-6665

POC: Joe Labalbo

-----

U.S. Army Laboratory Command  
ATTN: AMSLC-IS-L  
Adelphi, MD 20783-1145

C: (202)394-3594

AV: 290-3594

POC: Dann Barrick

-----

U.S. Army Laboratory Command  
Harry Diamond Laboratories  
ATTN: ALCHD-IT-R  
Adelphi, MD 20783-1197

C: (202)394-2917

AV: 290-2917

POC: Robert Rosen

-----

U.S. Army Laboratory Command  
Ballistics Research Laboratory  
ATTN: SLCBR-VL-V  
Aberdeen Proving Ground, MD 21105-5066

C: (301)278-6644/6656

AV: 298-6644/6656

POC: Dr. Paul Deitz

-----

U.S. Army Laboratory Command  
Electronics Technology and Devices Laboratory  
ATTN: SLCET-I  
Ft. Monmouth, NJ 07703-5302

C: (201)544-3465

AV: 995-3465

POC: Randy Reitmeyer

-----

U.S. Army Laboratory Command  
Human Engineering Laboratory  
ATTN: SLCHS-CS  
Aberdeen Proving Ground, MD 21005-5001

C: (301)278-3126

AV: 298-3126

POC: Gary A. Hass

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS

COMMERCIAL (C)

AUTOVON (AV)

U.S. Army Laboratory Command  
Army Research Office  
ATTN: SLCRO-IN  
P.O. Box 12211  
Research Triangle Park, NC 27709-2211

C: (919)549-0641  
Ext. 200

AV: 935-3331

POC: Tim Evans

-----

U.S. Army Laboratory Command  
Human Engineering Laboratory-ARDEC Detachment  
ATTN: SLCHE-AR  
Picatinny, NJ 07801-5001

C: (201)724-3227

AV: 880-3227

POC: Jack Carlock

-----

U.S. Army Laboratory Command  
Materials and Technology Laboratory  
ATTN: SLCMT-TM  
Watertown, MA 02172-0001

C: (617)923-5526

AV: 955-5526

POC: Kenneth B. Rice

-----

U.S. Army Laboratory Command  
Armament, Munitions and Chemical Command  
ARDEC-Close Combat Armaments Center  
Benet Weapons Laboratory  
ATTN: SMCAR-LCB  
Watervliet, NY 12189-4050

C: (518)266-5703

AV: 974-5703

POC: Victor Montouri

-----

U.S. Army Missile Command  
ATTN: AMSI-RD-SE-MT  
Redstone Arsenal, AL 35898-5270

C: (205)876-2147

AV: 746-2147

POC: James M. Anderson

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS

COMMERCIAL (C)

AUTOVON (AV)

U.S. Army Tank  
Automotive Command  
ATTN: AMSTA-TMM  
Warren, MI 48397-5000

C: (313)574-6722

AV: 786-6722

POC: Dave Pyrcce

-----

U.S. Army Tank-Automotive Command  
Project Manager, Abrams Tank System  
ATTN: AMCPM-ABMS-C  
Warren, MI 48397-5000

C: (313)574-5850

(313)574-7039

(313)574-7105

AV: 786-5850

786-7039

786-7105

POC: Charles Baldwin  
MAJ T. Phillips  
L.A. Lypeckyj

-----

U.S. Army Tank-Automotive Command  
Detroit Arsenal Tank Plant  
ATTN: AMSTA-CWP  
Warren, MI 48909-5000

C: (313)574-5126

AV: 786-5126

POC: Suri Surendran

-----

U.S. Army Tank-Automotive Command  
Lima Army Tank Plant  
ATTN: AMSTA-CLCP  
Lima, OH 45804-1898

C: (419)227-0029

Ext. 241

AV: 786-6623

Ext. 241

POC: B.J. Huber

-----

U.S. Army Test and Evaluation Command  
ATTN: AMSTE-TD  
ATTN: AMSTE-IM-C  
Aberdeen Proving Ground, MD 21005-5055

C: (301)278-4170

(301)278-4971/4458

AV: 298-4170

298-4971/4458

POC: Harry Peters  
Jim Zuchoski

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS

COMMERCIAL (C)

AUTOVON (AV)

U.S. Army Combat Systems Test Activity  
ATTN: STECS-DA-CA  
Aberdeen Proving Ground, MD 21055-5059

C: (301)278-2134

AV: 298-2134

POC: Richard K. Pahel

-----

U.S. Army Troop Support Command  
ATTN: AMSTR-PPE  
St. Louis, MO 63120-1798

C: (314)263-3417

(314)263-2668

POC: Gary McMichael  
Julie Sexton

AV: 693-3417

693-2268

-----

U.S. Army Troop Support Command  
Belvoir Research, Development and Engineering Center  
ATTN: STRBE-WY  
Ft. Belvoir, VA 22060-5606

C: (703)664-4995/5855

AV: 354-4995/5855

POC: Clyde Piezold

-----

U.S. Army Troop Support Command  
Natick Research, Development and Engineering Center  
ATTN: STRNC-DFE  
Natick, MA 01760-5000

C: (617)651-5404

AV: 256-5404

POC: Ronald J. Esposito

-----

U.S. Army Troop Support Command  
Natick Research, Development and Engineering Center  
ATTN: STRNC-DLE  
Natick, MA 01760-5000

C: (617)651-4332

AV: 256-4332

POC: Thomas A. Rhodes

-----

U.S. Army Troop Support Command  
Natick Research, Development and Engineering Center  
ATTN: STRNC-EML  
Natick, MA 01760-5014

C: (617)651-4890

AV: 256-4890

POC: Robert Kelly

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS

COMMERCIAL (C)

AUTOVON (AV)

U.S. Army Troop Support Command  
Natick Research, Development and Engineering Center  
ATTN: STRNC-MAS  
Natick, MA 01760-5014

C: (617)651-4277

AV: 256-4277

POC: Dr. Michael Robel

-----

U.S. Army Depot Systems Command  
ATTN: AMSDS-EN-EA  
Chambersburg, PA 17201-4170

C: (717)267-8321

AV: 570-8321

POC: Bill Dura  
Bob Enterline

-----

U.S. Army Depot Systems Command  
Anniston Army Depot  
ATTN: SDSAN-DM-PE  
Anniston, AL 36202-5001

C: (205)235-7740

AV: 571-7740

POC: Larry Knighton

-----

U.S. Army Depot Systems Command  
Corpus Christi Army Depot  
ATTN: SDSCC-MPI  
Corpus Christi, TX 78419-6000

C: (512)939-2214/3243

AV: 861-2214/3243

POC: Tommy G. Neugent

-----

U.S. Army Depot Systems Command  
Letterkenny Army Depot  
ATTN: SDSLE-MMD

C: (717)267-9642

(717)267-5520

AV: 570-9642

570-5520

Chambersburg, PA 17201-4150

POC: William P. Houck  
Jerry Klien



INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS

COMMERCIAL (C)

AUTOVON (AV)

U.S. Army Depot Systems Command  
Lexington Blue Grass Army Depot  
ATTN: SDSLB-ASG  
Lexington, KY 40511-5010

C: (606)293-3184

AV: 745-3184

POC: Jim Kingsolver

-----

U.S. Army Depot Systems Command  
Mainz Army Depot  
ATTN: SDSMZ-MIS  
APO New York, NY 09185

C: (011)49-61316-96328

AV: (314)334-5328

POC: Wendy Stewart

-----

U.S. Army Depot Systems Command  
New Cumberland Army Depot  
ATTN: SDSNC  
New Cumberland, PA 17070-5000

C: (717)782-7255/6613

AV: 977 7255/6613

POC: SFC James Smith

-----

U.S. Army Depot Systems Command  
Red River Army Depot  
ATTN: SDSRR-NC  
Texarkana, TX 75507-5000

C: (214)334-2135

AV: 829-2135

POC: Joe B. Alexander

-----

U.S. Army Depot Systems Command  
Sacramento Army Depot  
ATTN: SDSSA-MPE-4 (CAD/CAM)  
SDSSA-MPE (Robotics)  
Sacramento, CA 95813-5036

C: (916)388-2398

AV: 839-2398

POC: Duane George

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS

COMMERCIAL (C)

AUTOVON (AV)

U.S. Army Depot Systems Command  
Savanna Army Depot  
ATTN: SDSLE-VA  
Savanna, IL 61074-9636

C: (815)273-8451

AV: 585-8451

POC: A. Yeager

-----

U.S. Army Depot Systems Command  
Seneca Army Depot  
ATTN: SDSSE-LME  
Romulus, NY 14541-5001

C: (607)869-1593

AV: 489-5593

POC: Linda M. Guy

-----

U.S. Army Depot Systems Command  
Sharpe Army Depot  
ATTN: SDSSH-FT-FT  
Lathrop, CA 95331-5000

C: (209)982-2641

AV: 462-2641

POC: Robert E. Mustain

-----

U.S. Army Depot Systems Command  
Sierra Army Depot  
ATTN: SDSSI-PPC  
Herlong, CA 96113-5000

C: (916)827-4507

AV: 830-9507

POC: Lain Ayers

-----

U.S. Army Depot Systems Command  
Tobyhanna Army Depot  
ATTN: SDSTO-ME-E  
Tobyhanna, PA 18466-5075

C: (717)894-7089

AV: 795-7089

POC: Frank Estock

INSTALLATION/POINT OF CONTACT

TELEPHONE NUMBERS

COMMERCIAL (C)

AUTOVON (AV)

U.S. Army Depot Systems Command  
Tooele Army Depot  
ATTN: SDSTE-PBM  
SDSTE-CAME  
Tooele, UT 84074-5023

C: (801)833-2626/2924

AV: 790-2626/2924

POC: Merlin E. Peterson  
Elizabeth Leonelli

-----

U.S. Army Foreign Science and Technology Center  
ATTN: AMXST-SDI  
220-7th Street, NE  
Charlottesville, VA 22901  
(Published Report Only)

C: (804)296-5171

AV: 274-5171

POC: Kent Schussel

-----

U.S. Military Academy  
ATTN: MADN-F  
MADN-4  
West Point, NY 10996  
(Published Report Only)

C: (914)938-4189/2369

AV: 688-4189/2369

POC: COL John H. Grubbs  
LTC Lance Leach

APPENDIX 2

# SUMMARY LIST OF RESPONSES

## AMC MAJOR SUBORDINATE COMMANDS, INSTALLATIONS AND SEPARATE REPORTING ACTIVITIES

COMMAND	OFFICE SYMBOL	POC ASSIGNED	DATA PROVIDED	NEGATIVE REPORT	NO REPORT REQUIRED
<u>AMC</u>	AMCPO	YES			X
<hr/>					
<u>SEPARATE REPORTING ACTIVITIES</u>					
ALMC	AMXMC	YES		X	
<hr/>					
AMCSEL	AMXMC-SEL-E	NO	NO		
<hr/>					
CSDA	AMXLS-LGR	NO	NO		
<hr/>					
USATMDESPTGP	AMXTM-R	YES		X	
<hr/>					
AMEC	AMXOM-SE	YES		X	
<hr/>					
ISA	AMXEN	YES		X	
<hr/>					
<u>AMCCOM</u>	ASNC-ARI-TW	YES	PROVIDED BY MPBMA		X
<hr/>					
ARDEC	ASNC-APT-I	YES	YES		
<hr/>					
CRDEC	SMCCR-SPE	YES	YES		

COMMAND	OFFICE SYMBOL	POC ASSIGNED	DATA PROVIDED	NEGATIVE REPORT	NO REPORT REQUIRED
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MPBMA	AMSMC-PBT-I(D)	YES	YES		
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ARSENALS (\* DENOTES ADDITIONAL DATA PROVIDED BY MPBMA)

PINE BLUFF *	SMCPB-IMP	YES	YES		
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ROCK ISLAND *	SMCRI-APR	YES	NO		
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ROCKY MOUNTAIN	SMCRM-IS-M	YES		X	
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WATERVLIET *	SMCWV-ODP	YES	YES		
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ARMY AMMUNITION PLANTS (\* DENOTES ADDITIONAL DATA PROVIDED BY MPBMA)

BADGER	SMCBA-OR	YES		X	
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CORNHUSKER	SMCCO-CR	YES		X	
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HAWTHORNE	SMCHW	NO	NO		
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HOLSTON *	SMCHO	NO	YES		
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INDIANA	SMCIN-EN	YES	YES		
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IOWA *	SMCIO-EN	YES	NO		
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COMMAND	OFFICE SYMBOL	POC ASSIGNED	DATA PROVIDED	NEGATIVE REPORT	NO REPORT REQUIRED
JOLIET	SMCJO	YES	YES		
KANSAS	SMCKA-CE	YES		X	
LAKE CITY *	SMCLC-EN	YES		X	
LONE STAR	SMCLS-EN	YES	YES		
LONGHORN	SMCLO-EN	YES	NO		
LOUISIANA *	SMCLA-EN	YES	YES		
MCALESTER	SMCMC-AOE	YES	YES		
MILAN *	SMCMI-EN	YES	NO		
MISSISSIPPI *	SMCMS-EN	YES		X	
NEWPORT *	SMCNE	YES		X	
RADFORD *	SMCRA-CAP	YES		X	
RAVENNA	SMCRV	YES		X	
RIVERBANK *	SMCRB	YES	YES		

COMMAND	OFFICE SYMBOL	POC ASSIGNED	DATA PROVIDED	NEGATIVE REPORT	NO REPORT REQUIRED
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SCRANTON *	SMCSC-EN	YES		X	
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ST. LOUIS	SMCSL	YES		X	
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SUNFLOWER *	SMCSU-OR	YES		X	
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TWIN CITIES	SMCTC	NO	NO		
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VOLUNTEER	SMCVO-CR	YES	YES		
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ARMY AMMUNITION ACTIVITY

CRANE	SMCCN-RMM	YES	YES		
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<u>AVSCOM</u>	AMSAV-EMC	YES	YES		
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APTD	SAVRT-TY	YES		X	
------	----------	-----	--	---	--

---

USA PLANT REP BELL HEL TEXTRON	SAVBE-A	YES		X	
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USA PLANT REP BOEING VERTOL	SAVBV-A	YES		X	
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COMMAND	OFFICE SYMBOL	POC ASSIGNED	DATA PROVIDED	NEGATIVE REPORT	NO REPORT REQUIRED
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USA PLANT  
REP HUGHES  
HEL

SAVHU-A

YES

X

USA PLANT  
REP MCDONALD  
DOUGLAS

SAVMC-A

YES

X

CECOM

AMSEL-PC-SI

YES

YES

CNVEO

SMSSEL-RD-NV

YES

X

CSLA

SELCL-IM

NO

NO

CNTR FOR  
SIG WARFR

AMSEL-RD-SW

YES

X

EMRA

SELEM

YES

X

DESCOM

AMSDS-EN-EA

YES

PROVIDED  
BY DEPOTS

X

DEPOTS

ANNISTON

SDSAN-DM-PE

YES

YES

CORPUS  
CHRISTI

SDSCC-MPI

YES

YES

COMMAND	OFFICE SYMBOL	POC ASSIGNED	DATA PROVIDED	NEGATIVE REPORT	NO REPORT REQUIRED
LETTERKENNY	SDSLE-MMD	YES	YES		
LEX-BLUE GRASS	SDSLB-ASG	YES	YES		
MAINZ	SDSMZ-MIS	YES	YES		
NEW CUMBERLAND	SDSNC	YES		X	
RED RIVER	SDSRR-NC	YES	YES		
SACRAMENTO	SDSSA-MPE	YES	YES		
SAVANNA	SDSLE-VA	YES	YES		
SENECA	SDSSE-LME	YES		X	
SHARPE	SDSSH-FT-FT	YES	YES		
SIERRA	SDSSI-PPC	YES	YES		
TOBYHANNA	SDSTO-ME-E	YES	YES		
TOOELE	SDSTE-PBM	YES	YES		

COMMAND	OFFICE SYMBOL	POC ASSIGNED	DATA PROVIDED	NEGATIVE REPORT	NO REPORT REQUIRED
<u>LABCOM</u>	AMSLC-IS-L	YES		X	
HDL	ALCHD-IT-R	YES	YES		
-----					
BRL	SLCBBR-VL-V	YES		X	
-----					
BENET WPNS LAB	SMCAR-LCB	NO	PROVIDED BY WATERVLIET ARSENAL		X
-----					
ETDL	SLCET-I	NO	NO		
-----					
HEL	SLCHE-CS	YES	NO		
-----					
ARO	ALCRO-IN	YES		X	
-----					
HEL-ARDEC DET	SLCHE-AR	YES		X	
-----					
MTL	SLCMT-TM	YES	YES		
-----					
<u>MICOM</u>	AMSI-RD-SE-MT	YES	YES		
-----					
<u>TACOM</u>	AMSTA-TMM	YES	YES		
-----					

COMMAND	OFFICE SYMBOL	POC ASSIGNED	DATA PROVIDED	NEGATIVE REPORT	NO REPORT REQUIRED
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PM ABMS TNK SYS	AMCPM-ABMS-C	YES	NO		
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DET ARS TNK PLT	AMSTA-CWP	YES	ACTION TRANSFERRED TO PM-ABMS		
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LIMA TNK PLANT	AMSTA-CLCP	YES	ACTION TRANSFERRED TO PM-ABMS	X	
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<u>TECOM</u>	AMSTE-IM-C	YES	YES		
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CSTA	STECS-DA-CA	YES	YES		
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<u>TROSCOM</u>	AMSTR-PPE	YES		X	
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BRDEC	STRBE-WY	YES		X	
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NRDEC	STRNC-DFE	YES	YES		
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NRDEC	STRNC-EML	YES	YES		
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APPENDIX 3

LOCATION  
AMCCOM  
Headquarters

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
-------	------	------	------	------	------	------	------	------	------	------	----------------------	---------------------

FOUR (4) CAE WORKSTATIONS  
WITH ELECTRONIC DESIGN AND  
ANALYSIS

CAE (4)

180.0

180.0

AMCCOM TOTAL											180.0	
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LOCATION  
AMCCOM  
ARDEC

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
-------	------	------	------	------	------	------	------	------	------	------	----------------------	---------------------

GENERAL ELECTRIC CALMA,  
(G.E., SDRC, CADSI)

CAD  
CAE  
CAM

1,200.0

1,200.0

TWO (2) CLERITY, C 1260  
ONE (1) ALLIANT FX-8

CAD  
CAE

2,000.0

2,000.0

COMPUTER VISION, CADD5-4X  
PCB DESIGN AND IC DESIGN FOR  
FIRE CONTROL ENGINEERING AND  
ANALYSIS

CAD  
CAE

600.0

600.0

COMPUTER VISION, CADD5-4X FOR  
DRAFTING AND DESIGN

CAD

300.0

100.0

6,600.0

7,000.0

SILICON GRAPHICS FOR FUTURE  
WEAPONS

CAD  
CAE

1,500.0

1,500.0

3,000.0

ARDEC TOTAL											3,000.0	4,200.0	6,600.0	13,800.0
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LOCATION  
AMCCOM  
CRDEC

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
COMPUTERVISION CORPORATION (CC): CAD CDS 4101 SUPPORTING 8 CV INSTAVIEW CNTLS DSGN. SYS SUPPORTS BASIC AND ADV SURFACE DSGN	CAD CAE						750.0				750.0	
CC: CDS 3000, CADD SERVER FOR 6 CV SUPPORTS. TCP/IP USED FOR DIMENSIONING AND DETAILING END ITEMS FOR ENTRY INTO DATA BASES.	CAD							320.0			320.0	
CC: CDS 3000 CADD SERVER SUPPORTING 6CV 30M END ITEM INTERFACING OF PACKAGING DESIGNS FOR INCRP INTO TDPS	CAD							280.0			280.0	
SAME AS '86 PGM ABOVE EXCEPT FUNDED IN '87	CAD CAE								280.0		280.0	
CC: CDS CADD 3000 SERVER SUPPORTING 6CU 30M CADD STAS. USED FOR DSGN	CAD								280.0		280.0	
CC: CDS 3000 CADD SERVER FOR 3 CV 32C CADD STAS. FULL LINE OF MECH AND ELECTRONIC SOFT WARE	CAD CAE								240.0		240.0	
CC: CDS 3000 CADD SERVER FOR 3CV 32C CADD STA. GEOMETRY DSGN DATA PASSED DIRECTLY FROM ENGR. SYSTEMS. ON LINE TOOL GENERATION IS PRG" IDEED FOR TURNING AND MILLING	CAD CAE CNC							340.0		110.0	450.0	
TWO (2) C.C. CDS 3000 CADD SERVERS FOR 12 CV 32C CADD STA DSGNG FULL LINE OF MECHANICAL AND ELECTRONIC SOFT WARE	CAE(2)								541.0	400.0	941.0	
CRDEC SUB-TOTAL (1)							750.0	940.0	1,341.0	510.0	3,541.0	

LOCATION

AMCCUM  
CRDEC

## ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
-------	------	------	------	------	------	------	------	------	------	------	----------------------	---------------------

CC: CDS 3000 CADD SERVER  
FOR 2CV 32C CADD STASCAD  
CAE

220.0

220.0

CC: CDS 3000 CADD AND CDS  
CDS 5000 FOR DSGN CNTL.CAD  
CAE

951.0

951.0

CDS 3000 FOR DSGN AND ANAL  
INTERFACE CDS 5000 5000 (IBM 4381)  
END ITEM DATA BASE

CRDEC SUB-TOTAL (2)							750.0	940.0	1,341.0	1,171.0	1,171.0	
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CRDEC TOTAL							750.0	940.0	1,341.0	1,681.0	4,712.0	
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ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT												
ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)												
PLANNED												
LOCATION												
AMCCOM Pine Bluff Arsenal												
TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS

ROBOT ARM WITH ADEPT SCARA  
#776 TO TRANSFER GRENADES CAR 100.0 100.0

BINARY -155MM, M687 CHEMICAL CAM 7,202.5 7,202.5  
PROD/L/A/P 28,810 x 25% = 7,202.5  
(CIM INVESTMENT) (REPORTED BY PBMA,  
COMPUTER PORTION ESTIMATED)

BIG EYE FILL/CLOSE FACILITY AMH- 6,100.0 6,100.0  
24,400.0 x 25% = 6,100.0 EQUIP  
(CIM INVESTMENT) (REPORTED BY CAI  
PBMA, COMPUTER PORTION ESTIMATED)

PINE BLUFF TOTAL											6,200.0	13,402.5
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ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT												
ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)												
PLANNED												
LOCATION												
AMCCOM Rock Island, Arsenal												
TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS

CNC VERTICAL TURNING LATHE DNC 381.0 381.0  
(MMT)

CNC MILLING MACHINE (MMT) 345.0 345.0

AUTOMATIC CONTROLS FOR CAM 135.0 135.0  
MACHINING (MMT)

ROBOTIZED BENCHING CAR 150.0 150.0  
OPERATIONS (MMT) CAM

IN-PROCESS CONTROL CAM 906.0 1,164.0 2,070.0  
OF MACHINING (MMT)

IMPROVED CASTING TECHNIQUE CAD 250.0 136.0 122.0 508.0  
(MMT)

ROCK ISLAND SUB-TOTAL (1)												3,589.9
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LOCATION  
AMCCOM  
Rock Island, Arsenal

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
COMPUTER INTEGRATED MANUFACTURING SYS (MMT)	CIM		235.0	294.0	75.0	2,400.0					3,004.0	
ON-LINE PROD INFO SYS (MMT)	CAM			67.0	188.0	571.0					826.0	
DSGN CRITERIA FOR HARDENING (MMT)	CAD CAM					5.0					5.0	
FMS'S WITH SPECIAL TOOLING (MMT)	CAM			129.0		260.0	178.0				565.0	
FACTORY INFORMATION MGT (MMT)	CAM					1.0					1.0	
ROBOTIC WELDING (MMT)	CAR						354.0				354.0	
(ALL OF RIA REPORTED BY PRMA, NO DETAILS)												

ROCK ISLAND SUB-TOTAL (2)			235.0	490.0	263.0	3,237.0	532.0				4,755.0	
ROCK ISLAND TOTAL		150.0	1,141.0	2,039.0	399.0	3,740.0	877.0				8,344.0	

LOCATION  
AMCCOM  
Watervliet Arsenal

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
CIM FOR CANNON PROJECT (MMT)	CIM						1,010.0	692.0	372.0	378.0	2,452.0	515.0
GROUP TECHNOLOGY - ADVANCED ENGINEERING PERIPHERAL EQUIP. (MMT)	CAE		180.0		250.0						430.0	
GOULD 3257 COMPUTER SYSTEM FOR PARTS PROGRAMMING CENTER- PROVIDES MCD INFO FOR ALL NC MACHINES AT ARSENAL	CAM							143.6			143.6	
WATERVLLET SUB-TOTAL (1)			180.0		250.0		1,010.0	835.6	372.0	378.0	3,025.6	515.0

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT  
ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

LOCATION  
AMCOM  
Watervliet Arsenal

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
AUTOMATIC STORAGE & RETRIEVAL SYSTEM, INTERLAKE INC. MFG SPT	AM - EQUIP			1,500.0							1,500.0	
TOOL MANAGEMENT SYSTEM INCLUDING AUTOMATIC DELIVERY OF TOOLS TO MACHINES	CAM			2,092.5							2,092.5	
COMPUTER AUTOMATIC MATERIAL TRANSFER EQUIPMENT (MMT)	CAM											556.0
DESIGN, DRAFTING WORKSTATIONS FOR VARIOUS BLDGS	CAD CAM									4,400.0	4,400.0	
VAX 11-750 DNC COMPUTER SYSTEM TO PROCESS TEST & INSPECTION DATA (ROTARY FORGING PREHEAT, FORGING QUENCHING & MECHANICAL PROPERTIES DATA)	CAM								8.0		8.0	
FACTORY COMMUNICATIONS NETWORK NC PART PROGRAMS TO CONTROL 90 NC/CNC MACHINE TOOLS	CAM DNC								3,398.0	630.0	4,028.0	1,460.0
E18, SURFACE GRINDER	CNC CAM								697.9		697.9	
VECTOR IND., INC., CHEMICAL AGENT RESISTANT PAINT COATING FACILITY	CAR							1,500.0			1,500.0	
SIX (6) HARDINGE, BAR CHUCKING LATHES	CNC							837.8			837.8	
TWO (2) STUDER INC., CNC CYLINDRICAL GRINDERS	CAM(2)							315.5			315.5	
FOUR (4) MILWAUKEE MATIC 800, K & T MACHINING CENTERS	CNC(4)						1,644.3				1,644.3	
CELL CONTROLLER AND AUTOMATIC MATERIAL DELIVERY SYSTEM FOR HORIZONTAL MACHINING CENTERS	CAM						6,973.0				6,973.0	
WATERVLIET SUB-TOTAL (2)				1,500.0			10,709.8	2,653.3	4,103.9	5,030.0	23,997.0	2,016.0

LOCATION  
ANCOM  
Watervliet Arsenal

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT  
ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
G & L, VERTICAL TURNING/BORE LATHE, SERIES 512	CAM						593.9				593.9	
FIVE (5) VERTICAL BORING MACHINES WITH CELL CONTROLLER AND AUTOMATIC MATERIAL DELIVERY.	CAM(5)						4,555.0				4,555.0	
FIVE (5) AXIS MACHINING CENTERS TO BE USED WITH GROUP TECHNOLOGY CELLS	CAM(5)						2,568.0				2,568.0	
TWO (2) DEVLIEG (HORIZ.) PRESET MACHINES, ONE (1) DEVLEIG (VERT.) PRESET MACHINE FOR NC MACHINES.	CAM(3)						75.4		20.9		96.3	
CINCINNATI MILACRON MACHINING CENTER, MODEL SVC-750 D FOR MILLING AND DRILLING	CNC						160.6				160.6	
HERMES, GRAPHIC LATHE	CNC						324.4				324.4	
THREE (3) K&T MILLING MACHINES	CNC(3)						473.7				473.7	
HARDINGE LATHE	CNC						154.0				154.0	
THREE (3) SIP JIG BORES, MODEL SIP 620	CAM(3)					1,116.1					1,116.1	
TWO (2) WALTER GRINDERS FOR GRINDING MAJOR COMPONENTS	CAM(2)					390.4					390.4	
TWO (2) CINCINNATI MILACRON CNC SLANT BEDS	CAM(2)					140.0					140.0	
PETEME OPTICAL PROFILE GRINDER, CAM MODEL PFS 30 -CNC	CAM					187.3					187.3	
THREE (3) CINCINNATI MILACRON BAR FEED CHUCKERS, MODEL BC-AT FOR MINOR COMPONENTS	CAM(3)					501.6					501.6	
WATERVLLET SUB-TOTAL (3)						2,335.4	8,905.0		20.9		11,261.3	

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

LOCATION

AMCCOM

Watervliet Arsenal

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
MIDWEST PRECISION BROACH GRINDER, MODEL RSHA 2500/225	CAM			476.0							476.0	
AGITRON CORP WIRE EDM, MODEL IGICUT #315, TOOL ROOM	CAM			192.5							192.5	
ACCURATE BORE EVACUATOR DRILLING MACHINE	CAM			989.0							989.0	
RD & D HOLLOW SPINDLE LATHE	CAM			642.0							642.0	
FOUR (4) BUTLER NOWELL INTERNAL HOLLOW SPINDLE GRINDERS	CAM(4)			4,866.0							4,866.0	
TWO (2) RD & D HOLLOW SPINDLE LATHES	CAM(2)			1,794.8							1,794.8	
K & T MACHINING CELL FOR MILLING, DRILLING AND TAPPING	CAM			1,456.9							1,456.9	
G & L, 4 AXIS HORIZONTAL MACHINING CENTER	CAM			488.6							488.6	
NUMEREX, COORDINATE MEASURING MACHINE (FOUR (4) UNITS), MODEL 2436	CAI			196.4							196.4	
SHEFFIELD CORDAX, COORDINATE MEASURING MACHINE, 3000	CAI			49.6							49.6	
TWO (2) CINCINNATI MILACRON CHUCKING LATHES	CAM(2)			1,215.0							1,215.0	
RD & D ENGINE LATHE	CAM			607.7							607.7	
TWO (2) HELLER PROFILERS, PFH/V 10-1000, MIRROR COMP.	CAM			469.8							469.8	
SCHARMAN HORIZONTAL MACHINING CENTER	CAM			687.7							687.7	
WATERVLIET SUB-TOTAL (4)				687.7		13,444.3					14,132.0	

LOCATION

AMCCOM  
Watervliet Arsenal

## ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
HERMES UNIVERSAL TURNING CENTER FOR MIRROR COMPONENTS	CAM				139.4						139.4	
HUFFMAN, 8 AXIS GRINDER, HS-87R	CAM				337.8						337.8	
TWO (2) ENTEC FILAMENT WINDERS # 572-192	CAM(2)				552.1						552.1	
FOUR (4), 5 AXIS HUFFMAN GRINDER HS-75R	CAM(4)				1,110.2						1,110.2	
CINCINNATI MILACRON CNC COMPACT MACHINING CENTER PR/12 HV 39287	CAM				121.5						121.5	
TEN (10) WOHLBERG, CNC ENGINE LATHES U1070S	CAM(10)				5,780.5						5,780.5	
THREE (3) HELLER MILLING MACHINES, PVH/V-12-1400G	CAM(3)				1,342.0						1,342.0	
CINCINNATI MILACRON T3776 INDUSTRIAL ROBOT 4608-A42-84-0164	CAR				298.4						298.4	
THREE (3) E1B SURFACE GRINDERS	CAM(3)				278.0						278.0	
NINE (9) WC1 MACHINING CENTERS, MODEL 20V	CNC(9)				1,483.5						1,483.5	
SIX (6) WOHLBERG LATHES MODEL V 1070S	CNC(6)				3,216.4						3,216.4	
TEN (10) WC1 MACHINING CENTERS (FMS). TWO BULLARD VERTICAL TURNING CENTERS (FMS)	CAM(10)			7,000.0	8,339.3						15,339.3	
FIVE (5) HELLER JIG BORING MACH. PFH/V-12-1400G; PFH/V-10-1800G	CAM(5)			1,677.1							1,677.1	
WATERVLIET SUB-TOTAL (5)				7,000.0	10,016.4						31,676.2	

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

LOCATION  
AMCCDM  
Watervliet Arsenal

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
TWO (2) SIP JIG BORING MACHINES SIP 720	CAM(2)			1,068.1								1,068.1
UCKO CHUCKING MACHINE DV-62-2A	CNC			493.5								493.5
THREE (3) CINCINNATI MILACRON GUIDED BORERS FOR BORING TUBES	CAM(3)			4,258.4								4,258.4
RUDEL, SIP/SWITZERLAND DRILL EVACUATOR BS-31/TE 30NC	CNC			524.8								524.8
DOVETAIL MILLING MACHINE RUDEL/HELLER SFD 10/5000	CAM		2,213.0									2,213.0
FOUR (4) WFJ BARNE INTERNAL CYLINDRICAL GRINDER 996K	CAM(4)		4,467.0									4,467.0
TWO (2) WOHLBERG LATHES, U-10705	CAM(2)		1,197.7									1,197.7
THREE (3) RD & D CHAMBER BORING LATHES, HS 1620 B	CAM(3)	2,832.0										2,832.0
THREE (3) RD & D HOLLOW SPINDLE LATHES, HS 1620 T	CAM(3)	2,798.2										2,798.2
THREE (3) JONES & LAMSON UNIV LATHES, CNC UNIV 312A	CNC	549.4										549.4
TWO (2) HELLER CNC 2 SPINDLE PROFILER PFH-12-1400/80	CNC	860.6										860.6
THREE (3) HELLER CNC SPINDEL PROFILERS PFH-12-1400/800	CNC	1,117.0										1,117.0
FIVE (5) J & L CHUCKER LATHES TNC COMB1 312A, MINOR COMPONENTS	CNC(5)	700.2										700.2
NC MACHINING, CAD/CAM, INSPECTION MFG. SUPPORT, CIM TRAINING	LAD CAM									471.4		471.4
WATERVLIET SUB-TOTAL (6)		8,857.4	7,877.7	6,344.8						471.4	23,551.3	

LOCATION: AMCCOM Watervliet Arsenal

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
FIVE (5) AT & T 6300 PC WORKSTATIONS ROTARY FORGE HEAT TREATMENT, CRACK DETECTION	CAM(S)								33.0	43.0		76.0
WV 12381, LASER MARKER FOR MARKING COMPONENTS	CAM							79.5				79.5
NUMEREX COORDINATE MEASURING MACHINE, 3624-18C, INSPECT. MACH. PARTS	CAI						49.0					49.0
ACOUSTIC EMISSION TECH., MONITORING OF CANNON STRAIGHTENING	CAM						63.0					63.0
NUMEREX COORDINATE MEASURING MACH., 3624-18 FOR TRAINING	CAI						49.0					49.0
AUTO GUN TUBE INSPECTION STATION SHEFFIELD, DIA & STRAIGHTNESS, CHROME PLATE	CAI						260.0					260.0
SHEFFIELD AUTO GUN TUBE INSPECTION STATION DIA & STRAIGHTNESS/DIAMETER (MMT)	CAI		166.0									166.0
S.W. RESEARCH WRB-02 AUTO MAGN. PERTURBATION INSPECTION CANNON (MMT)	CAI							26.0				26.0
IN-PROCESS & FINAL THREAD INSPECTION	CAI								135.0			135.0
DATA ACQUISITION	CAD									50.0		50.0
CONRAC 1252-0797, CHROME PLATE DEFECTS GUN TUBE	CAI							35.0	47.0	69.0		151.0
BRUNNING, 84-C-0004 HP 9836 GAGE DRAFTING	CAD						61.0					61.0
BRINNELL HARDNESS TESTER, GUN TUBE HARDNESS	CAT							170.0				170.0
WATERVLIT SUB-TOTAL (7)			166.0			61.0	421.0	310.5	215.0	162.0	1,335.5	7.0



ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

LOCATION  
AMCCOM  
Watervliet Arsenal

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
SHEFFIELD, COORDINATE MEASURING MACHINE	CAT					101.0						101.0
CORDAX, 1814 DCC, SURFACE PLATE INSPECTION	CAI			240.0								240.0
SHEFFIELD CORDAX, MODEL 1815 DCC, SURFACE PLATE INSPECTION	CAI						756.5					756.5
SHEFFIELD APOLLO, RS-150-DCC SURFACE PLATE INSPECTION	CAI								192.7			192.7
SHEFFIELD CORDEX, 1808 DCC, SURFACE PLATE INSPECTION	CAI							255.2				510.4
ZEISS, UPMC-550, 3 AXIS INSP. OF GAGES & MEAS. DEVICES	CAI						257.0					257.0
NUMEREX, COORDINATE MEASURING MACHINE, 3:24-18C HR105 VA 85-10 INSPECTION OF METAL PARTS	CAI						49.0					49.0
GYMNASTICATOR, 120 MM BREACH TEST	CAT									150.0		150.0
SCHMEIDE, WVA 1252 0025, INSPECT., CHAMBER DIM. 120MM N256	CAI							66.0				66.0
HEWLETT-PACKARD 25B, 3421 A, UDT25,WVA STRAIGHTNESS INSPECTION M256, M68	CAI							50.0				50.0
AUTOMATED GUN TUBE INSP FOR 8" CANNON, BORE & RIFLING	CAI					193.0						193.0
JONES & LAMSON OPTICAL COMPARATOR, VA 8403 84-09, INSPECTION OF MACH. PARTS	CAI					79.0						79.0
WATERVLLET SUB-TOTAL (8)				433.0		180.0	1,062.5	371.2	447.9	150.0	2,644.6	

LOCATION

AMCCOM

Watervliet Arsenal

## ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
HP 5528A, LASER MEASUREMENT SYSTEM, PORTABLE INSPECTION RIFLE BAR TWIST	CAI					150.0					150.0	
TURNING LATHE, 22" X 60'	CNC							675.8			675.8	
FIVE (5) K&T HORIZONTAL MACHINING CENTERS MILLING & DRILLING COMP.	CNC(5)					2,027.5					2,027.5	
EIGHT (8) CINCINNATI MILACRON CHUCKING LATHES - MINOR COMPONENTS	CAM(8)					1,203.0					1,203.0	
THREE (3) TOOL PRESETTING MACHINES INCLUDING PC'S	CAM(3)				296.3						296.3	
PROCESS CONTROLLER, WV-12152, SHADOW OPTIC, BREECH RING INSPECTION DEVICE FOR BREECH RING FORGINGS (MMT)	CAI	35.0	422.0								457.0	
ROBOT, ASEA IRB-6, 5 AXIS BENCHING OPERATIONS (MMT)	CAR	113.0	287.0								400.0	
ALLEN-BRADLEY-ROCKFORD SLOTTER, SLOTTING BREECH BLOCK CONFIG.	CNC		292.0								292.0	
ALLEN-BRADLEY BORING LATHE, LARGE CALIBER POWDER CHAMBERS	CNC	59.0	156.0								215.0	
MAGERLE BROS. TYPE HPA-124, WV 12106, SURFACE GRINDER	CAM	133.0	134.0	134.0							401.0	
PORTABLE ENGRAVING TOOL, E-S-1 (MMT)	CAM		84.0	171.0							255.0	
TWO (2) ALLEN BRADLEY CHROMIUM PLATING UNITS (MMT)	CAM			301.0	260.0						561.0	
WATERVLIET SUB-TOTAL (9)		340.0	1,375.0	606.0	556.3	3,380.5		675.8			6,933.6	

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

LOCATION  
AMCCOM  
Watervliet Arsenal

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
HP 9836, SERIES 200, PERSONAL COMP. DETECT VIBRATION - SOURCE OF PROBLEM (MMT)	CAT			310.0							310.0	
STRUTHERS DUNN, 4001, 4002 WV -12441, AUTO TUBE HANDLER FROM FORGE TO SAW (MMT)	CAM			1,100.0	1,200.0						2,300.0	
I. BRAUN SOHNE ABRASIVE CUT OFF SAW TSH 15220 FOR FORGINGS (MMT)	CAM				2,200.0						2,200.0	
LASER CONTROL FOR CUTTING, SPOT ANNEALING FOR CANNON (MMT)	CAM					780.0					780.0	
MOTO-MAN ROBOT, L104, WITH YASNAC-RX CONTROLLER FOR WELDING (MMT)	CAM					215.0	334.0				549.0	
GN3 INC., 8421. PERSONAL COMPUTER, FOR SELAS HEAT TREATMENT SYSTEM (MMT)	CAM					75.0					75.0	
MIDLAND ROSS - WITH COMPUTER HARD WIRED ON HEAT & QUENCH EQUIP FOR ROTARY FORGE (MMT)	CAM					409.0					409.0	
ALLEN-BRADLEY PROCESS CONTROLLER FOR I.D. SURFACE INSPECTION OF GUN TUBES (MMT)	CAI					168.0					168.0	
CONTROL FOR HEAT TREAT (QUENCH) EQUIPMENT (MMT)	CAM			241.0							241.0	
AUTO MACHINE TENSILE TEST (MMT)	CAI											580.0
INTERPHASE INC ROBOT 3000 SERIES, FOR ALLEN BRADLEY ROBOT (MMT)	CAR							370.0			370.0	
ALLEN-BRADLEY EQUIPMENT FOR FUZE SALT PROCESS (MMT)	CAE					460.0	250.0				710.0	175.0
WATERVLLET SUB-TOTAL (10)				1,651.0	3,400.0	2,107.0	584.0	370.0			8,112.0	775.0

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

PLANNED

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

LOCATION  
AMCCOM  
Watervliet Arsenal

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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CONTROL OF PLATING FOR REFACTORY MATERIAL (MMT)	CAE											940.0
ALLEN-BRADLEY, 8200 PROGRAMMABLE CONTROLLER FOR WHEEL DRESSER, - GRINDER (MMT)	CNC						80.0	170.0	139.0	140.0	529.0	
HP PERSONAL COMPUTER TO CONTROL OPTICAL GAGING PRODUCTS INSPEC. MACHINE (MMT)	CAI						125.0				125.0	
TRANSFER OF ROTARY FORGED TUBES FROM FORGE TO HEAT TREAT (MMT)	CAI											300.0
ALLEN-BRADLEY CONTROLLER FOR METAL PLATING, 120MM M256 AND EXTENDED GUN TUBES (MMT)	CAM			241.0	195.0			403.0	403.0		1,242.0	
VALIDYNE TRANSDUCER; ANALOGUE DEVICES CORP MICROCOMPUTER, MACSYM-10 FOR SENSORS, STRAIN GAGES ON GUIDED BORE LATHE, 120 MM GUN TUBES (MMT)	CAM			458.0		85.0					543.0	
CONTROL FOR PLATING PROCESSES (MMT)	CAM											300.0
HP SERIES 200/9836C DEC VAX 11/750 TEMPERATURE, SENSORS, VIBRATING & SHOCK MONITORS (MMT)	CAM						253.0	60.0	25.0		338.0	
WATERVLIET SUB-TOTAL (11)				699.0	195.0	85.0	458.0	633.0	542.0	165.0	2,777.0	1,540.0
WATERVLIET TOTAL			9,197.4	16,598.7	21,250.2	19,748.8	21,593.2	5,849.4	5,701.7	6,356.4	129,446.1	4,833.0

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT  
ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

LOCATION  
AMCCOM  
Holston-AAP

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
THREE (3) INTERGRAPH ISPI16 32C DUAL COLOR WORKSTATIONS WITH PLOTTER	CAD(3)							50.0		170.0	220.0	

EXPLOSIVE COMPOSITION -C4

609.0

609.0

12,150.0 x 5% = 609.0  
(CHEM FEED PROCESS CONTROLS)  
(REPORTED BY PBMA NO VENDOR  
OR CIM BREAKOUT COMPUTER  
PORTION ESTIMATED)

CAM

301.0

301.0

EXPLOSIVE, CONVERSION RDX  
TO HMX CAPACITY 6,020 x 5%  
= 301.0 (CHEM FEED PROCESS  
CONTROLS) (REPORTED BY PBMA  
NO VENDOR OR CIM BREAKOUT  
COMPUTER PORTION ESTIMATED)

HOLSTON TOTAL

1,130.0

170.0

351.0

609.0

LOCATION  
AMCCOM  
Indiana AAP

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT  
ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
ALLEN-BRADLEY, PROGRAMMABLE LOGIC CONTROLLER (PLC) 2/20 FOR REPACK OF R3, M10 AND CB1, BLACK POWDER SCREEN AND DRY.	CAM					24.0					24.0	
INSTROM INC., MODEL NO. 4206 FOR TEST OF FABRIC STRENGTH, AND IBM PC MODEL 5150 AND OR-IDATA PRINTER, MODEL 1930 PERIPHERAL EQUIPMENT.	CAT						45.0				45.0	
INDIANA AAP SUB-TOTAL (1)						24.0	45.0				69.0	

LOCATION  
AMCCOM  
Indiana - AAP

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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GOULD-MODICORN 584PLC FOR  
INCREMENT WEIGHING, BAG LOADING  
CHARGE ASSEMBLY FOR 155MM CTGS.  
(PROCESS CONTROLS)

156.3

156.3

TECTRONIC INC., MODEL NO.  
390 AD FOR CLOSED BOMB SPECIAL  
TEST SYSTEM

25.0

25.0

PERNICK INC., MODEL NO  
TH300AT FOR FABRIC STRENGTH  
INSPECTION

51.7

51.7

COMPUTER DESIGN  
AND DRAFTING SYSTEM

384.4

INDIANA - AAP SUB-TOTAL (2)							233.0				233.0	384.4
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INDIANA TOTAL						24.0	278.0				302.0	384.4
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LOCATION  
AMCCOM  
Iowa - AAP

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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ACAU COMPAQ DESKPRO  
386 AT PC, NEC JC-1401  
P3 MONITOR COMPAQ ENHANCED  
KEYBOARD, CALCOMP 25120  
DIGITIZER HOUSTON INSTRUMENTS  
DMP 52 PLOTTER AUTOCAD SOFTWARE,  
INTERFACE WITH IBM 4381

220.0

220.0

IOWA - AAP SUB-TOTAL (1)									220.0		220.0	
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ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT  
ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

LOCATION  
AMCCOM  
Iowa - AAP

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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MANAGEMENT SCIENCE AMERICA  
(MANUFACTURING SYSTEM (9  
MODULES) OPERATES ON IBM 4381,  
MAINFRAME FOR INVENTORY  
OF COMPONENTS, PRODUCTION  
SPT PROCESS CNTLS & MGMT  
FUNCTIONS

500.0

CIM

DIGITAL IMAGE AMPLIFICATION  
X-RAY SYSTEM

CAI

180.0

180.0

AUTO. INSPECTION DEVICE,  
EXPLOSIVE CHARGE IN SHELL

CAI

5,000.0

155XM172 WARHEAD,  
COPPERHEAD L/A/P FACILITY

CAM

2,640.0

DIGITAL IMAGE AMPLIFICATION  
X-RAY SYSTEM

CAI

130.0

260.0

130.0

IOWA - AAP SUB-TOTAL (2)		1,298.0	1,885.0	1,817.0			180.0		630.0	130.0	5,940.0	2,770.0
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IOWA TOTAL		1,298.0	1,885.0	1,817.0			180.0		850.0	130.0	6,160.0	2,770.0
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ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT  
ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

LOCATION  
AMCCOM  
Lake City - AAP

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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SLAMP - M8 BANDOLEER

CNC

1,401.0

1,401.0

5.56MM BANDOLEER M8 PACK  
EQUIPMENT

CNC

2,210.0

2,210.0

LAKE CITY - AAP SUB-TOTAL (1)							1,401.0	2,210.0			3,611.0	
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LOCATION: AMCCOM  
Lake City - AAP

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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5.56MM SMALL CAL. MULTIPLE  
PROD HANDLE (SCAMP) CNC 7,250.0 7,250.0

PYRO -SAFETY ENHANCEMENT  
13,180 x 10% #1,318.0 CAI 1,318.0

(REPORTED BY PBMA, NO DETAILS)

LAKE CITY SUB-TOTAL (2)								7,250.0			7,250.0	1,318.0
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LAKE CITY TOTAL							1,401.0	9,460.0			10,861.0	1,318.0
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LOCATION: AMCCOM  
Longhorn - AAP

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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ALLEN-BRADLEY 2/20 PROGRAMMABLE CAM  
LOGIC CONTROLLER (PLC)  
FOR MATERIAL HANDLING  
CONVEYOR SYSTEM (POWDER SUPPLY) 6.0 6.0

ALLEN-BRADLEY 1774 (PLC) FOR CAM 8.0 8.0  
MATERIAL HANDLING CONVEYOR SYSTEM  
(INTERFACE W/ROBOT)

TWO (2) COMPAQ 286 COMPUTER  
WITH MONITOR, COLOR GRAPHICS  
TATUM MODEL CM 1380F & PLOTTER  
SINGLE PEN, HOUSTON INSTRUMENT  
MODEL DMP 56A FOR AUTOMATED  
DRAFTING AND DESIGN FUNCTIONS. 14.0 14.0

LONGHORN - AAP SUB-TOTAL (1)										8.0	20.0	28.0
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ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

LOCATION  
AMCCOM  
Longhorn - AAP

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
ALLEN-BRADLEY, 1774, (PLC) LOADING MACHINE FOR DETONATORS	CAM						10.0	10.0			10.0	
ALLEN-BRADLEY, 1774 (PLC) FOR PRIMER HEAD ASSEMBLY EQUIPMENT	CAM		14.0								14.0	
FOUR (4) ALLEN-BRADLEY, 5/15 (PLC) FOR DETONATOR LOADING MACHINE	CAM(4)								80.0		80.0	
TWO (2) ALLEN-BRADLEY, 2/15, (PLC) FOR PELLET CONSOLIDATION (MS49/650)	CAM(2)				24.0						24.0	
THREE (3) ALLEN-BRADLEY, 2/05 (PLC) FOR DETONATOR LOADING MACHINE	CAM(3)						15.0				15.0	
TWO (2) ALLEN-BRADLEY 5/15 (PLC) FOR FRONTLINE ACCESS DOORS	CAM(2)									40.0	40.0	
ALLEN-BRADLEY 1774, (PLC) FRONTLINE ACCESS DOORS	CAM				17.0						17.0	
TWO (2) ALLEN-BRADLEY 1774, (PLC) FOR PROCESS SYSTEM DRYING.	CAM(2)				34.0						34.0	
SEVEN (7) ALLEN-BRADLEY, 1774, (PLC), PROCESS BLENDING SYSTEM	CAM(7)				153.0						153.0	
GENERAL MOTORS FANUC ROBOT FOR 81MM BANDWELD AND 60/81MM RING GAGE MACHINE	CAR									50.0	50.0	
ALLEN-BRADLEY, 2/30, PLC CORE MEMORY 1772-M16 MAIN CHARGE PRESSES AND CURING SYSTEMS	CAM					67.5					67.5	
LONGHORN - AAP SUB-TOTAL (2)			14.0			295.5		25.0	80.0	90.0	504.5	

LOCATION

AMCCOM

Longhorn - AAP

## ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
ALLEN-BRADLEY, SLC1000 VOLCANO TRIM & ROLL, VOLCANO TUBE CRIMP	CAM					1.6						1.6
ALLEN-BRADLEY, 1774, (PLC) FRONT LINE MATERIAL HANDLING SYS	CAM							90.0			90.0	
ALLEN-BRADLEY 2/05 (PLC) DETONATOR LOADING MACHINE	CAM							8.0				8.0
ALLEN-BRADLEY 2/05 (PLC) 782 PRIMER INTEGRATION	CAM								4.0			4.0
HEWLETT-PACKARD, 86B,GATOR ELECTRONIC TESTING, MOPMS TESTER	CAI					5.1	1.7					6.8
HEWLETT-PACKARD HAND HELD #41 CV FOR TESTING GATOR MOPMS ELECTRONIC COMPONENTS	CAI					5.8						5.8
HEWLETT-PACKARD, 85B FOR MOMENTS OF INERTIA F/GATOR	CAI					3.5						3.5
ADEPT II W/VISION ROBOT FOR ASSEMBLY SLIDER LOCK ON M77 GRENADE	CAR								108.0		108.0	
PROB CONVEYORS INC., VERSATRON MODEL FB W/MODEL 600 CONTROLLER ON ROBOT FOR TRANSFER OF M509 ICM PROJECTILES	CAR			108.0							108.0	
ALLEN-BRADLEY, 2/15, (PLC) DISPENSING LOADING AND DOWN LOADING MACHINES, PAINTING SYSTEM AND HEAD LOADER	CAM					6.0						6.0
ALLEN-BRADLEY 2105, (PLC) FOR ROLL & CRIMP	CAM					3.8	1.0					4.8
LONGHORN - AAP SUB-TOTAL (3)				108.0		25.8	2.7	8.0	112.0	90.0	346.5	

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

LOCATION  
AMCCOM  
Longhorn - AAP

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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4.2

ALLEN-BRADLEY, 1773 LIA  
& 1773 L1B, PROGRAMMABLE  
LOGIC CONTROLLER (PLC) TO CONTROL  
THRU-THE-WALL CONVEYORS

4.2

3.7

HEWLETT-PACKARD HAND HELD  
COMPUTER, 71 W FOR MOPMS  
ELECTRONIC INSPECTION EQUIPMENT

3.7

2,990.0

MUSALL PILOT MODEL (REPORTED  
BY PBMA, NO DETAILS) (PROCESS  
CONTROLS)

2,990.0

3,990.0

MUSALL PILOT PLANT DESIGN  
(REPORTED BY PBMA, NO DETAILS)

3,990.0

5,002.5

MUSALL PILOT PLANT INSTALL.  
\$20,010 x 25% = \$5,002.5 (CAM  
COMPUTER PORTION) (REPORTED BY  
PBMA, NO DETAILS)

5,002.5

LONGHORN - AAP SUB-TOTAL (4)					2,990.0	7.9	3,990.0	5,002.5			11,990.4	
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LONGHORN - AAP TOTAL		22.0	108.0	2,990.0	329.2	3,992.7	5,035.5	212.0	180.0		12,869.4	
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ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

LOCATION  
AMCCOM  
Lone Star - AAP

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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6.0

ALLEN-BRADLEY, 2/20, PROGRAMM-  
ABLE LOGIC CONTROLLER (PLC) FOR  
MATERIAL HANDLING CONVEYOR, POWDER  
SUPPLY

6.0

LONE STAR AAP SUB-TOTAL (1)									6.0		6.0	
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LOCATION AMCCOM Lone Star - AAP		ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT											
		ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)											
		TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS

ALLEN-BRADLEY, 1774, (PLC) MATERIAL HANDLING CONVEYOR SYSTEM, (INTERFACE WITH ROBOT)	CAM		8.0									8.0
TWO (2) COMPAQ, 286, FOR AUTOMATED DRAFTING	CAD(2)								14.0			14.0
ALLEN-BRADLEY, 1774, (PLC) FOR DETONATOR LOADING MACHINE	CAM							10.0				10.0
ALLEN-BRADLEY, 1774, (PLC) FOR PRIMER HEAD ASSEMBLY	CAM		14.0									14.0
FOUR (4) ALLEN-BRADLEY 5/15 (PLC) FOR DETONATOR LOADING	CAM(4)								80.0			80.0
TWO (2) ALLEN-BRADLEY, 2/15, (PLC) FOR PELLET CONSOLIDATION	CAM(2)						24.0					24.0
THREE (3) ALLEN-BRADLEY, 2/05 FOR DETONATOR LOADING	CAM(3)							15.0				15.0
THREE (3) ALLEN-BRADLEY, 5/15 (PLC) FOR FRONTLINE ACCESS DOORS	CAM(3)					17.0				40.0		57.0
TWO (2) ALLEN-BRADLEY, 1774, (PLCs) FOR DRYING PROCESS	CAM(2)					34.0						34.0
SEVEN (7) ALLEN-BRADLEY, 1774 FOR BLENDING PROCESS	CAM(7)					153.0						153.0
GENERAL MOTORS FANUC ROBOT FOR 81MM/60MM BANDWELD AND RING GAGE.	CAR									50.0		50.0
ALLEN-BRADLEY, (PLC), 2/30 1777-LP3 W/16K CORE MEMORY 1772-M16 FOR MAIN CHARGE PRESSES (4) AND U.V. CURING SYSTEM	CAM(5)					67.5						67.5
ALLEN-BRADLEY SLC-100, 1745 VOLCANO TRIM & ROLL AND VOLCANO TUBE CRIMP TWO (2) SYSTEMS	CAM					1.6						1.6

LONE STAR AAP SUB-TOTAL (2)			22.0			273.1	24.0	25.0	94.0	90.0	528.1	
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ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

LOCATION  
AMCCOM  
Lone Star - AAP

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
TWO (2) MODCOMP II/201 & THREE (3) ALLEN BRADLEY 1774 (PLCS), FOR FRONTLINE MATERIAL HANDLING SYSTEM	CAM(3)										650.0	
TWO (2) ALLEN-BRADLEY 2/05, (PLCS) FOR DETONATOR LOADING	CAM							8.0			8.0	
ALLEN-BRADLEY 2/05, (PLC) FOR M82 PRIMER ASSEMBLY	CAM								4.0		4.0	
HEWLETT-PACKARD, 86B, FOR GATOR ELECTRONIC TESTING AND MOPMS MODULE TESTER FOUR (4) SYSTEMS	CAI(4)						5.1	1.7			6.8	
HEWLETT-PACKARD, 41CV, HAND HELD, FOR TESTING GATOR/MOPMS ELECTRONIC COMPONENTS, TEN SYSTEMS	CAI(10)						5.8				5.8	
HEWLETT-PACKARD, 85B FOR GATOR MOMENTS OF INERTIA	CAI						3.5				3.5	
ADEPT II W/VISION SYSTEM ROBOT, FOR ASSEMBLY OF SLIDER LOCK ON M77 GRENADE	CAR								108.0		108.0	
PRAB ROBOTS, INC., VERSATRON MODEL FB, ROBOT, FOR TRANSFER OF M509 ICM PROJECTILES	CAR			108.0							108.0	
FOUR (4) ALLEN-BRADLEY, 2/15 1772-LV DISPENSER LOADING AND DOWN LOADING MACHINES PAINTING SYSTEM AND HEAD LOADER.	CAM(4)						6.0				6.0	
FOUR (4) ALLEN-BRADLEY, 1772-LS, 1772-LSP, 1772-MS (PLCS) FOR (3) EACH ROLL CRIMPERS AND (4) EACH INJECTION MOLDERS.	CAM(4)						3.8				3.8	
LONE STAR AAP SUB-TOTAL (3)				108.0		24.2	1.7	8.0	112.0		253.9	650.0

LOCATION: AMCCOM Lone Star - AAP

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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ALLEN-BRADLEY, 1773-LIA CAM(4) 4.2

1773-LIB FOR THRU THE WALL CONVEYORS & REMOVED FROM ROLL CRIMP MACHINES, FOUR (4) SYSTEMS 4.2

FOUR (4) HEWLETT-PACKARD, 71, HAND HELD FOR MOPMS CAI(4) 3.7

ELECTRONIC INSP. 3.7

LONE STAR AAP SUB-TOTAL (4)						7.9						7.9
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LONE STAR AAP TOTAL		22.0	108.0		305.2	25.7	33.0	212.0	90.0		795.9	650.0
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LOCATION: AMCCOM Louisiana - AAP

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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ZENITH WORKSTATION, AUTOCAD SOFTWARE FOR ENGINEERING CAD 10.0 10.0

INTERGRAPH 200 SYSTEM FOR ENGINEERING DRAWINGS CAD 137.0 137.0

BURROUGHS, A9DX, MAINFRAME COMPUTER FOR INVENTORY CONTROL AND IN-PROCESS INVENTORY MONITORING MRP 746.0 746.0

DATA GENERAL NOVA 4X/STATE ELECTRONICS FOR M483-A1 PROCESS CONTROL CAOC 35.0 35.0

OGIVE TURNING MACHINE (LATHE), MOD 864 CNC 4,000.0 4,000.0

LOUISIANA - AAP SUB-TOTAL (1)		35.0			10.0			746.0	137.0	4,000.0	4,928.0	
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ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

LOCATION  
AMCCOM  
Louisiana - AAP

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
DIGITAL IMAGE AMPLIFICATION X-RAY SYSTEM	CAI								130.0	130.0	260.0	124.0
HEWLETT-PACKARD 85, FOR X,Y,Z COORDINATE MEASURING	CAI					18.0					18.0	
TEN (10) MARPOSS AUTOMATIC GAGE, MODEL 2000, (MPCS)	CAI (10)		760.0								760.0	
TWO (2) MARPOSS AUTOMATIC GAGE, MODEL MP200, FOR M483A1 FOR OGIVE BASE	CAI (2)		152.0								152.0	
TWO (2) STEEL DOME BASE M687 AND DEEP BORE MACHINE M483A1	CNC (2)			4,220.0							4,220.0	
FOUR (4) GENERAL ELECTRIC CONTROL SYSTEM FOR CONTROL OF M483-A1 THREAD LATHE	CNC (4)								640.0		640.0	
SLOTTER ROBOT FOR DPICM GRENADES- 155MM, x M864, PROJ MPTS. 887.0 x 40% = \$354.8 (REPORTED BY PBMA, NO DETAILS)	CAR								354.8		354.8	
BINARY, 155MM, M687 PROJ. MPTS 4,500.0 x 40% = 1,800.0 (REPORTED BY PBMA, NO DETAILS)	CAM								1,800.0		1,800.0	
LOUISIANA - AAP SUB-TOTAL (2)			912.0	4,220.0		18.0		746.0	2,924.8	130.0	8,204.8	124.0
LOUISIANA - AAP TOTAL			35.0	912.0	4,220.0	18.0		746.0	3,061.8	4,130.0	13,132.8	124.0

LOCATION  
AMCCOM  
Mcalester - AAP

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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IBM-PC-AT (HARDWARE)  
ADE 3V2 (SOFTWARE)

18.0 70.0 10.0 98.0

MCALESTER AAP TOTAL								18.0	70.0	10.0	98.0	
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LOCATION  
AMCCOM  
Milan - AAP

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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DIGITAL IMAGE AMPLIFICATION  
X-RAY SYSTEM

CAI

400.0 312.0 712.0

155MM, M864 DPICH PROJ  
L/A/P 900 x 8% = 72.0  
PROCESS CONTROL PORTION  
(REPORTED BY PBMA, COMPUTER  
PORTION ESTIMATED)

CAM

72.0 72.0

MILAN AAP TOTAL								400.0	384.0		784.0	
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ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

LOCATION  
AMCCOM  
Mississippi - AAP

TITLE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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REHAB ROBOTIC CONTROLS

CAR

133.0

CORRECT MISCELLANEOUS DEFICIENCIES 130,100 x 20% = 26,020.0 (REPORTED BY PBMA, (COMPUTER PORTION ESTIMATED) (REPORTED BY PBMA, NO VENDOR CIM BREAKOUT)

CAM

26,020.0

MISSISSIPPI AAP TOTAL							26,020.0			26,020.0	133.0
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ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

LOCATION  
AMCCOM  
Newport - AAP

TITLE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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BINARY QL FACILITY 48,00 x 10% = 4,800.0 (CIM COMPUTER PORTION) (REPORTED BY PBMA, NO VENDOR OR CIM BREAKOUT, COMPUTER PORTION ESTIMATED)

CAM

4,800.0

4,800.0

NEWPORT TOTAL							4,800.0			4,800.0	
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LOCATION  
AMCOM  
Radford - AAP

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
PROPELLANT - CAMBL (HYBRID) $105,900.0 \times 10\% =$ 10,590.0 (PROCESS CONTROLS)	CAM	10,590.0									10,590.0	
PROPELLANT - NG CONT. PROCESS $26,000 \times 1\% = 260.0$ (PROCESS CONTROLS)	CAM						260.0				260.0	
PROPELLANT - NG CONT. PROCESS $37,200 \times 4\% = 1,488.0$ (PROCESS CONTROLS)	CAM				1,488.0						1,488.0	
(REPORTED BY PBMA, NO VENDOR OR CIM BREAKOUT, COMPUTER PORTION ESTIMATED)												
RADFORD TOTAL		10,590.0			1,488.0		260.0				12,338.0	

AD-A198 001

SURVEY OF AMC (ARMY MATERIEL COMMAND) OWNED COMPUTER  
AIDED PRODUCTION SYSTEMS(U) NATIONAL SYSTEMS MANAGEMENT  
CORP ARLINGTON VA J W CLARK ET AL. MAY 88

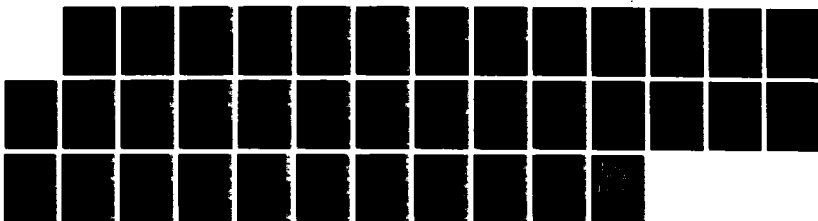
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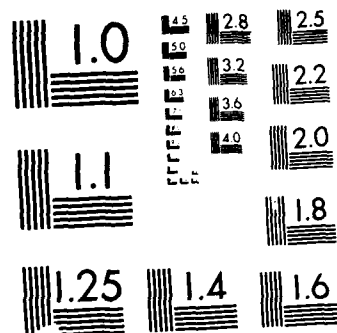
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UTION TEST CHART

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

PLANNED

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

LOCATION AMCCOM Riverbank - AAP													PROJECT SUB-TOTAL	1989 & OUT YEARS
TITLE		1980	1981	1982	1983	1984	1985	1986	1987	1988				
		TYPE												
													8,000.0	8,000.0

ESTABLISHMENT OF FLEXIBLE  
PROD LINE - 75MM TO 120MM  
MORTAR 20,000 x 40% = 8,000.0  
(CIM COMPUTER PORTION)

(REPORTED BY PBMA, NO VENDOR OR  
CIM BREAKOUT, COMPUTER PORTION  
ESTIMATED)

RIVERBANK TOTAL														
													8,000.0	8,000.0

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

PLANNED

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

LOCATION AMCCOM Scranton - AAP													PROJECT SUB-TOTAL	1989 & OUT YEARS
TITLE		1980	1981	1982	1983	1984	1985	1986	1987	1988				
		TYPE												
													5,440.0	5,440.0

CAM

155 MM XM 864 DPICM PROJ  
MPTS 13,600.0 x 40% = 5,440.0

(REPORTED BY PBMA, NO VENDOR OR  
CIM BREAKOUT, COMPUTER PORTION  
ESTIMATED)

SCRANTON TOTAL														
													5,440.0	5,440.0

LOCATION  
AMCCOM  
Sunflower - AAP

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT  
ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)  
PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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PROP LOVA 10,000.0 x  
10% = 1,000.0 (CIM COMPUTER  
PORTION)

CAM  
1,000.0  
  
(REPORTED BY PBMA, NO VENDOR  
OR CIM BREAKOUT, COMPUTER PORTION  
ESTIMATED)

SUNFLOWER AAP TOTAL												1,000.0
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LOCATION  
AMCCOM  
Crane Activity

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT  
ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)  
PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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CPU, MAG TAPE, CONSOLE WORK  
STATION, PLOTTER, TABLET FOR  
TOOL DESIGN

CAD  
56.0  
56.0

CRANE ACTIVITY TOTAL												56.0
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LOCATION  
AMCCOM  
SUMMARY

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000) PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
AMCCOM ACTIVITIES						180.0	750.0	3,940.0	5,541.0	8,281.0	18,692.0	
ARMY ARSENALS		9,347.4	24,942.2	23,289.2	20,147.8	25,333.2	24,027.3	5,849.4	5,701.7	6,356.4	151,192.6	4,833.0
ARMY AMMUNITION PLANTS		11,923.0	2,841.0	6,253.0	4,488.0	675.4	6,746.4	52,303.5	4,789.8	6,710.0	96,771.1	6,379.4
ARMY AMMUNITION ACTIVITY								56.0			56.0	
AMCCOM - TOTAL		21,270.4	27,783.2	29,542.2	24,635.8	26,189.6	31,523.7	62,148.9	16,032.5	21,347.4	266,671.7	11,212.4

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

LOCATION  
AVSCOM  
Stratford Army Engine Plant

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
IBM SERIES 1 COMPUTER FOR DNC CONTROL OF BORING MACHINES, CHUCKERS, LATHES, VERT MACH CTRS & IMPELLER MILLS	DNC						60.0				60.0	
PRODUCTO, TWIN SPINDLE CNC BORING MACHINE (PVB 4515)	DNC		379.3								379.3	
J & L 312B SHAFT TNC LATHE	DNC			152.4							152.4	
125 SPEC. RIGID CNC IMPELLER MILL	DNC		877.6								877.6	
TWO (2) MONARCH VERTICAL MACHINING CENTERS (VMC150)	CNC(2)								560.4		560.4	
THREE (3) BENDIX COORDINATING MEASURING MACHINES	CAT(3)			484.1							484.1	
FACTORY MOD PGM-AUTOMATED GUIDED VEHICLES, PC COMPUTERS, SOFTWARE. FOR GROUP TECHNOLOGY, MASTER PLANNING & CTL SYST, TOOL INFO MGT SYS.	CAD CAE AMH- CNTLS/ EQUIP					22,300.0					22,300.0	
AVSCOM TOTAL			877.6	1,015.8		22,300.0	60.0		560.4		24,813.8	



LOCATION  
CECOM

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
LOW COST HIGH STABILITY QUARTZ RESISTOR (MMT)	CAM					1,084.0					1,084.0	
MICROPROCESSOR COMPUTERIZED CRYSTAL OSCILLATOR (MMT)	CAM					1,335.0					1,335.0	
GAIN AS P LIGHT EMITTING DIODES (MMT)	CAM						650.0				650.0	
COMMUNICATIONS TECH TECHMOD FOR JTIDS (MMT)	CAD				2,000.0	3,027.0					5,027.0	
PRODUCTION FACILITIES FOR SHOCK RESISTANT CRYSTALS	CAM				4,900.0	5,000.0	5,000.0	5,000.0			19,900.0	
AUTO MICRO SEMICONDUCTOR DEVELOPMENT TESTING (MMT)	CAM							500.0			500.0	
CECOM TOTAL					6,900.0	10,446.0	5,650.0	5,500.0			28,496.0	

## LOCATION

DESCOM

Anniston Army Depot

## ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

## ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

## PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
APPLICON, COMPUTER GRAPHICS SYSTEM-899	CAD CAE			293.6							293.6	
AUTOMATIC STORAGE & RETRIEVAL SYSTEM	CAP									1600.0	1600.0	
CHARMILLES TECHNOLOGIES RAM TYPE EDM, ROBEFORM 400 FOR FABRICATION AND RECLAMATION OF REPAIR PARTS (F&R of R.P.)	CNC							217.9			217.9	
MONARCH VMC-150, CNC MACHINE CENTER (F&R of R.P.)	CNC				182.0						182.0	
MONARCH METALIST, CNC LATHE (F&R of R.P.)	CNC						139.5				139.5	
MONARCH TC-75, CNC LATHE (F&R of R.P.)	CNC			200.8							200.8	
MONARCH TC-1, CNC LATHE (F&R of R.P.)	CNC				210.2						210.2	
MONARCH METALLIST, CNC LATHE (F&R of R.P.)	CNC						139.5				139.5	
MONARCH VERTICAL MILLING MACHINE, VMC 75 (F&R of R.P.)	CNC						146.6				146.6	
W.A. WHITNEY CO, CNC FABRICATION CENTER MODEL 647 (F&R of R.P.)	CNC					306.8					306.8	
MONARCH, CNC VERTICAL LATHE VTN-10 (F&R of R.P.)	CNC				368.4						368.4	
CNC ENGRAVING MACHINE	CNC								60.0		60.0	
HOBART BROS MFG., CNC DABBER WELDER	CNC								216.6		216.6	
SUB-TOTAL (1)				494.4	761.4	636.7	3,925.6	217.4	276.6	1,600.0	4,081.9	

LOCATION		ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT										
DESCOM Anniston Army Depot		ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)										PLANNED
TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
INGERSOLL MILLING CO, CNC GANTRY MACHINING CENTER	CNC							590.0		590.0		
T.M. VACUUM PRODUCTS, MICRO- PROCESSOR CONTROLLED VACUUM FURNACE D2502 FOR HEAT TREATING	CNC				131.0						131.0	
GIDDING & LEWIS, CNC HORIZONTAL MACHINING CENTER, 10-HS (F&C of R.P.)	CNC		404.9								404.9	
LINDE, CNC SHAPE CUTTING MACHINE, CH-350 (F&C of R.P.)	CNC		141.5								141.5	
MONARCH, CNC LATHE 220 (F&C of R.P.)	CNC		N.A.			(DIPEC EXCESS)						
MONARCH, CNC LATHE 220 (F&C of R.P.)	CNC		N.A.			(DIPEC EXCESS)						
MONARCH, CNC LATHE 3220 (F&C of R.P.)	CNC		N.A.			(DIPEC EXCESS)						
CINCINNATI MILACRON, CNC CYLINDRICAL GRINDER, SERIES 480 (F&C of R.P.)	CNC			250.4							250.4	
CINCINNATI MILACRON, CNC CYLINDRICAL GRINDER, SERIES 2EF7006 (F&C of R.P.)	CNC			215.0							215.0	
LEYBOLD-HENAEUS, ELECTRIC BEAM WELDER EBW-1500 (F&C of R.P.)	CNC							653.4			653.4	
CAMPBELL, CNC RACE RING GRINDER, FR100-10-18D (F&C of R.P.)	CNC								450.0		450.0	
CHARMILLES TECHNOLOGIES, WIRE EDM, ROBOFIL 400	CNC							214.0			214.0	
SCIAXY BROS INC., CNC RESISTANCE WELDER, GHRX-50	CNC							394.0			394.0	
SUB-TOTAL (2)			546.4				596.4	608.0	653.4	1,040.0	3,444.2	

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

LOCATION  
DESCOM  
Anniston Army Depot

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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WATER JET DENUDER SYSTEM (R&F of R.P.)	CAM								390.2		390.2	
CINCINNATI MILITRON, ROBOT WELDING SYSTEM, T746 (R&F of R.P.)	CAR					329.9					329.9	
AKR ROBOTICS SYSTEM, PAINT SPRAY ROBOT FOR RECLAMATION OF VEHICLE COMPONENTS	CAR								487.0		487.0	
GRAYCO ROBOTIC CAMOUFLAGE PAINT SYSTEM - DM500	CAR						3,500.0				3,500.0	
METCO METALIZING ROBOT, AR-100	CAR							459.9			459.9	
METREX CORP., COORDINATE MEASURING MACHINE A26-0080	CAI								139.0		139.0	

SUB-TOTAL (3)

5,306.0

ANNISTON TOTAL

12,831.9

LOCATION  
DESCOM  
Corpus Cristi

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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DIGITAL EQUIPMENT CORP.; MCDONALD-DOUGLAS UNIGRAPHICS, ONE SYSTEM FOR ALL DESIGN AND NC PROJECTS FOR MAINTENANCE	CAD										920.0	
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SUB-TOTAL (1)

920.0

LOCATION: ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

DESCOM  
Corpus Christi

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000) PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
THIRTY (30) USER SYSTEMS TO SUPPORT NC/CNC EQUIPMENT AND DESIGN OF TOOLING AND FIXTURES FOR REPLACEMENT AND EXPANSION PROGRAMS. DISTRIBUTED NETWORK CONTROL NETWORK BETWEEN CAD SYSTEM AND MACHINE TOOLS (NC/CNC)	CAD CAM DNC								1,100.0	290.0	1,390.0	
STORAGE AND RETRIEVAL OF WORK IN PROCESS AND MATERIAL DELIVERY WITH AUTO GUIDED VEHICLE SYSTEM	AMH- EQUIP											
NEW HERMES, UNIGARD II, C/C ENGINEERING MACHINE	CNC							15.0			15.0	
KEARNY & TRECKER UNIVERSAL MACHINING CENTER - 15VC	CNC							158.0			158.0	
MITSUBI SEIKI, CNC JIG BORING MACHINE - 6CN	CNC							365.0			365.0	
MITSUBI SEIKI, CNC JIG BORING MACHINE - 7CN	CNC							495.0			495.0	
HOBART ROBERTS CO., COMPUTER CONTROLLED PLASMA/TIG WELDING SYSTEM, MODEL # 200409 FOR REBUILD OF TURBINE ENGINE PARTS	CNC							375.7			375.7	
WIEDERMAN CENTRUM, CNC PUNCH PRESS #3000, SHEET METAL	CNC							215.8			215.8	
GMF, 6 AXIS ELECTRO- MECHANICAL S 360-R (METAL SPRAY)	CAR							350.0			350.0	
MONARCH, CNC MILLING MACHINE, UNC-75	CNC			204.0							204.0	
SUB-TOTAL (2)				204.0				1,974.5	1,100.0	290.0	3,568.5	

\* (N.A. except )  
(need to know)

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

LOCATION  
DESCOM  
Corpus Christi

PLANNED

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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HARDINGE, SUPERSLANT HORIZONTAL CNC 132.0 132.0  
TURRET LATHE, 2AB-58

MONARCH, CNC HORIZONTAL LATHE, CNC 263.0 263.0  
TC-1

REPUBLIC LAGON, CNC MILLING CNC 42.0 42.0  
MACHINE #110

HITACHI, CNC MACHINING CENTER, CNC 193.0 193.0  
HLH

HES MFR, CNC HORIZONTAL TURRET CNC 170.0 170.0  
LATHE, MODEL 500

HES MFR, HORIZONTAL TURRET CNC 212.0 212.0  
LATHE, MODEL 500

TOYODA, CNC UNIVERSAL GRINDER CNC 160.0 160.0

HES MFR, CNC HORIZONTAL TURRET CNC 157.0 157.0  
LATHE

GUILDE MEISTER, CNC HORIZONTAL CNC 167.0 167.0  
TURRET LATHE

NUMERICS, CNC MACHINING CENTER, CNC 154.0 154.0  
MVC-10

SPECTRUM PNYSKS/CARDINAL TOOL CNC 490.0 490.0  
CO., CUTTER MOD. 810

SUB-TOTAL (3)				1,297.0	353.0	490.0					2,140.0	
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CORPUS CRISTI TOTAL			920.0	1,501.0	353.0	490.0		1,974.5	1,100.0	290.0	6,628.5	
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ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

LOCATION  
DESCOM  
Letterkenny

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
APPLICON (SCHLUMBERGER) INC., CAD/CAM GRAPHICS SYSTEM FOR ENGR. DWGS & DATABASE MGMT	CAD CAE			202.0		202.0					404.0	
HILLVER INC, CNC 3 AXIS VERT MACH CTR, MODEL 200 (LIFE 10 YRS, PAYBACK 1.2)	CNC				252.2						252.2	
BURGMASER, CNC 3 AXIS VERTICAL MACHINING CENTER MODEL 200, (PAYBACK 1.7 YRS)	CNC					169.9					169.9	
HARDINGE, CNC 2 AXIS TURNING CENTER (PAY BACK 2.6 YRS).	CNC				105.9						105.9	
HARDINGE, CNC 3 AXIS TURNING CENTER (PAYBACK 3.0 YRS)	CNC					134.6					134.6	
TRUMPF, CNC PUNCH PRESS/ PLASMA CUTTING MOD 300PN (PAYBACK 3.6 YRS)	CNC				424.0						424.0	
MATSURRA, CNC 3 AXIS VERTICAL MACHINING CENTER MODEL-MC100Y	CNC								230.0		230.0	
CINCINNATI-MILACRON, CNC CYLINDRICAL GRINDER MOD 4080AH	CNC								371.0		371.0	
KEARNEY & TRECKER, CNC 7 AXIS HORIZONTAL MACHINING CENTER, MODEL MODULINE	CNC							1,650.0			1,650.0	
EATON KENWAY, ASPRS, MODEL 270 WITH AGV DEL. FOR COMPONENTS	AMH- EQUIP							9,000.0			9,000.0	
JONES & LAMSON, CNC 2 AXIS TURNING CENTER, MOD 312A	CNC			208.0							208.0	
LETTERKENNY TOTALS				410.0	252.0	1,036.4			11,251.0		12,949.6	

LOCATION  
DESCOM  
Lexington

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000) PLANNED

TITLE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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APPLICON, COMPUTER MVX 705, CAD/  
MICROVAUX 11, MODEL 5 HIGH CAM  
SPEED PUNCH MACHINE FOR MILLING  
MACHINES, PUNCH PRESSES, SHEARS,  
BRAKE PRESSES PLUS OTHER  
MACHINES TO BE UPGRADED TO CNC,  
OR REPLACED WITH NEW MACHINES.

179.3 350.0 539.3

LEXINGTON TOTAL

179.3 360.0 539.3

LOCATION  
DESCOM  
Mainz

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000) PLANNED

TITLE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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CARL C. CLOOS MFR., ROBOT  
MODEL 106 FOR CUTTING &  
WELDING

221.1

221.1

MAINZ TOTAL

221.1



ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

LOCATION  
DESCOM  
Red River

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
CAD/CAM NUMERICAL CONTROL FOR MFR. AND DESIGN SYSTEMS	CAD				790.0						790.0	
G.E., GP-110, PSD, AUTOMATIC DISASSEMBLY & DENUDING OF DOUBLE PIN TRACK PARTS	CAR							1,090.0			1,090.0	
CINCINNATI-MILACRON, T746S FOR WELDING M113 SUSPENSION	CAR						379.0				379.0	
TWO (2) AKR, 3000 ROBOTS FOR CAMOUFLAGE	CAR(2)							701.0			701.0	
TWO (2) DRACO DM5000 ROBOTS FOR CARC CAMOUFLAGE PAINTING	CAR(2)					540.0					540.0	
BROWN-BOVERI CORP., COMPUTERIZED HYDROSTATIC TRANSMISSION TESTER	CAT							4,500.0			4,500.0	
HAMILTON, SYSTEMS COMPUTERIZED ENGINE TESTER	CAT							3,200.00			3,200.0	
RED RIVER TOTAL					790.0	540.0	379.0	9,491.0			11,200.0	

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

LOCATION  
DESCOM  
Sacramento

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
GERBER SYSTEMS TECHNOLOGY WITH 10 WORKSTATIONS FOR NC PROGRAMMING OF LATHES, 2 1/2-3 MILLERS AND PUNCH PRESSES	CAD				1,120.2						1,120.2	
SUB-TOTAL (1)					1,120.2						1,120.2	

LOCATION: DESCOM Sacramento ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT  
 ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000) PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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INTERGRAPH 252 HOST, 10 CAD 1,400.0 1,400.0  
 INTERACT 32C, 12 INTERPRO CAE  
 32C, BENSON PLOTTER,  
 PRINTERS, LASER PRINT  
 FOR DESIGN, ANALYSIS AND MFGR  
 OF MECHANICAL PARTS

SUB-TOTAL (2)					1,120.2						1,120.2	
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SACRAMENTO TOTAL					1,120.2			1,400.0			2,520.2	
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LOCATION: DESCOM Savanna ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT  
 ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000) PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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MONARCH MACHINING CENTER CNC 215.0 215.0  
 MODEL VMC-150 WITH GE 1050  
 CONTROL FOR MILLING, DRILLING  
 TAPPING AND BORING AMMUNITION

MAZAK HORIZONTAL TURNING CNC 108.0 108.0  
 CENTER, MODEL M4-1000 WITH  
 FANUC 6713 CONTROL FOR BORING  
 TURNING AND THREADING AMMUNITION

SAVANNA TOTAL					323.0					323.0		
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LOCATION		ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT											PLANNED
DESCOM Sharpe		ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)											
TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS	
HEWLETT-PACKARD, HP1000, A700 CAD					190.0				8.0	15.0	213.0		

SHARPE TOTAL					190.0				8.0	15.0	213.0	
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LOCATION		ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT											PLANNED
DESCOM Sierra		ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)											
TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS	
AKR ROBOTIQUE MODEL ARK ROBOT	CAR						114.0				114.0		

SIERRA TOTAL							114.0				114.0	
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LOCATION-----		ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT											PLANNED
DESCOM Tooie		ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)											
TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS	

SUB-TOTAL (1)					500.0				500.0		1,000.0	
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LOCATION  
DESCOM  
Tootele

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
DRAFTING & DESIGN, SYSTEM NC PROGRAMMING	CAD CAE CNC											500.0
AUTOMATED STORAGE AND RETRIEVAL SYSTEM FOR REBUILD STORAGE PARTS	AMH- CNTLS							870.0			870.0	
DRAFTING AND DESIGN OF CHEMICAL MUNITION DISPOSAL EQUIPMENT	CAD											500.0
KEARNEY TRECKER, CNC MACHINING CENTER FOR MILLERS	CNC				160.8						160.8	
LEBLOND MAKINO, BARON 25, SLANT BED LATHE FOR MISC PARTS	CNC					127.4					127.4	
KITAMURA, MY CENTER 6, FOR MACHINING CENTER FOR MISC. PARTS	CNC						154.0				154.0	
LATHE CNC, 25 HP FOR AMMO PARTS	CNC							90.0			90.0	
THREE (3) AXIS MACHINING CENTER FOR FABRICATION MISC. PARTS	CNC									200.0	200.0	
PLASMA CUTTING MACHINE CNC, FOR CUTTING OF PLATE AND WELDING OPERATIONS	CNC											85.0
NINE (9) EA. TREE, 3 AXIS MILLERS MODEL 325 FOR MISC. PARTS	CNC(9)							460.4			460.4	
TWO (2) EA. CNC ENGINE LATHES WITH BAR FEEDERS FOR MISC. PARTS	CNC(2)											200.0
SUB-TOTAL (2)					160.8	127.4	154.0	1,420.4		200.0	2,062.6	1,285.0

LOCATION  
DESCOM  
Tooele

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
EXPERTS SYSTEM AND TWO (2) EA. BLOCK RECONDITIONING SYSTEMS TO HONE & BORE ENG. BLOCKS	CNC(2)								125.0		125.0	825.0
AUTO CRANK SHAFT GRINDING CENTER FOR GRINDING INTERNAL COMBUSTION ENGINES	CNC											750.0
CNC MACHINING CENTER	CNC											116.0
CNC TURRET PUNCH WITH LASER CUTTING OF SHEET METAL	CNC											500.0
CNC MACHINING CENTER FOR FABRICATION MISC. METAL PARTS	CNC											200.0
STRIPITT HOUDAILLE, 1250/30/1500 TURRET HOLE PUNCHING MACHINE	CNC		230.0								230.0	
KERN, 3 DIMENSIONAL ELECTRONIC COORDINATE MEASURING MACH TO MEASURE MISC (GENERATOR/TURBINE) PARTS	CAI						82.0				82.0	
ROBOT FOR PAINTING ENGINE CONTAINERS	CAR			358.1							358.1	
CINCINNATI MICRON ROBOT FOR ROBOT TEST BED	CAR				115.9						115.9	
GMF S-100, SIX AXIS ROBOT WITH GMF KAREL CONTROLLER FOR WELDING	CAR						66.0	40.0			106.0	
GRACO ROBOT PAINTING SYSTEM FOR CARC PAINTING OF LARGE VEHICLES	CAR						1,693.0				1,693.0	
TURBINE & ENGINE TEST SET, BUILT BY TOOELE FOR TURBINE ENGINES	CAT						40.0				40.0	
TWO (2), MEDIUM CAPACITY TACTICAL ELECTRICAL POWER ENGINE TEST SETS BUILT BY TOOELE FOR GENERATOR ENGINES	CAT(2)							230.0			230.0	
SUB-TOTAL (3)			230.0	358.1	115.9		40.0	2,071.0	165.0		2,580.0	2,391.0

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT  
ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

LOCATION:  
DESCOM  
Todele

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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CAT  
FROUDE ENGR. INC. SYSTEMS-  
COMPUTERIZED TEST FOR REBUILT  
ENGINES 1,300.0 1,300.00

CAT  
HP 1000 COMPUTER WITH H.P.  
GAS CHROMATOGRAPH & TECHNICON  
COLORMETERS 125.0 125.0

CAT  
MAXWELL IND. INC. CHASSIS  
DYNAMOMETER WATER TYPE  
FUNCTIONAL TESTING SYSTEM  
FOR REBUILT ENGINES 836.0 836.0

CAT  
LASER VIBRATION DETECTION  
EQUIPMENT FOR DIAGNOSTIC  
TEST OF TRANSMISSIONS/  
TRANSFER CASES 500.0 890.0 1,390.0

SUB-TOTAL (4)							1,300.0		1,461.0	890.0	3,651.0	
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TODELE TOTAL			230.0	358.1	160.8	743.3	1,494.0	3,491.4	2,126.0	1,090.0	9,693.6	3,676.0
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ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT  
ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

LOCATION:  
DESCOM  
Tobyhanna

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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CAE  
DESIGN & ANALYSIS COMPUTER  
SYSTEMS WITH 22 WORKSTATIONS  
OR INCREASING PRODUCTIVITY OF  
DESIGN ENGINEERS 2,300.0

SUB-TOTAL (1)												2,300.0
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LOCATION  
DESCOM  
Tobyhanna

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
APPLICON COMPUTER GRAPHICS FOR MECHANICAL & ELECTRONIC DESIGN WITH WORKSTATIONS	CAD	650.0							100.0		750.0	
INTEL 310 AUTOMATED TOOL CONT, INVENTORY SYSTEM TEST AND INSPECTION OF OVERHAUL/ FABRICATIONS	AMH- CNTLS								43.0		43.0	
EATON - KENWAY, IN PROCESS MATERIAL CONTROL AND STORAGE FOR AUTOMATED SUPPLY AND RETRIEVAL SYSTEM (ASRS)	MRP								9,053.0		9,053.0	
HEWLETT-PACKARD ADP PROGRAM DEV. STATION HP 3000 (SERIES 44), TWO(2) EA.	CAT (2)	360.0									360.0	
OVERHAUL AND FABRICATION OF ARMY COMMUNICATIONS ELECTRONICS SYSTEMS IBM 4381, 13 MODULES, 130 TERMS - (MAINT SHOP FLOOR SYS)	MRP							1,098.0			1,098.0	
INTEL 310 & WYSE PC EXPERT COST ESTIMATING SYSTEM	CAD								14.0		14.0	
AUTO TECHNICAL DOCUMENTATION SYSTEM FOR TEST MANUALS AND TEST PROCEDURES	CAD											135.0
MDSI (APPLICON) NUMERINDEX WITH COMPACT II AND FOR NC TAPE PREPARATION FOR 13 CNC MACHINES	CAM							12.0			12.0	
SUB-TOTAL (2)		1,010.0						1,110.0	9,210.0		11,330.0	

LOCATION  
DESCOM  
Tobyhanna

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
MACH-CENTER, DRILLER/ROUTER EXCELLON XL-5 CNC CONTROLLER	CNC			123.8							123.8	
MACH-CENTER, MONARCH VMC45 GE 2000 CONTROLLER	CNC								111.0		111.0	
MACH-CENTER, MONARCH VMC45 GE 2000 CONTROLLER	CNC								111.0		111.0	
MACH-CENTER, MONARCH VCM 150 GE 1050 CONTROLLER	CNC			161.0							161.0	
MACH-CENTER, VCM 150 GE 1050 CONTROLLER	CNC			161.0							161.0	
MACH-CENTER, HILLIER CNC 600 GE 1050 CONTROLLER	CNC			244.4							244.4	
MACH-CENTER, MOOG 3000 MC MOOG CONTROLLER	CNC			106.8							106.8	
MACH-CENTER, MOOG 3000 MC MOOG CONTROLLER	CNC		106.0								106.0	
TURNING CENTER, BROWN & SHARPE 2248 ALLEN BRADLEY CONTROLLER	CNC								140.0		140.0	
TURNING CENTER, LE BLOND BARON 40 G.E. 1050 CONTROLLER	CNC			167.2							167.2	
TWO (2) WARNER & SWASSEY, TURRET PRESS PUNCH MODEL 4560, WARNER/SWASSEY, G.E. CONTROLLER	CNC(2)			669.8							669.8	
TWO (2) TURNING CENTERS	CNC(2)								150.0		150.0	800.0
ROBOTIC PAINT SYSTEM APPLICATION OF CARC, SAFETY AND QUALITY	CAR									850.0	850.0	
ROBOTIC LASER WELDING SYSTEM CONTRACT AWARDED FOR DESIGN	CAR								225.0	1,350.0	1,575.0	
SUB-TOTAL 3)			106.0	1,634.0					737.0	2,200.2	4,677.0	800.0



ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

LOCATION  
DESCOM  
Tobyhanna

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
TEST PRINTED CIRCUIT BOARD BY INFRA RED CAMERA	CAI					178.0					178.0	
RCA CORP., ATE, ANALOGUE /DIGITAL AN/USM 410 SN-110	CAT						1,100.0				1,100.0	
TWO (2) HEWLETT-PACKARD, ATE, ANALOG HP-9580-C-55	CAT(2)	200.0									200.0	
HEWLETT-PACKARD, ATE, ANALOG, DIGITAL, HP-9580 C56	CAT	100.0									100.0	
HEWLETT-PACKARD, ATE, ANALOG, HP 9500 103	CAT			100.0							100.0	
GENERAL RADIO, ATE DIGITAL, GR 1795	CAT						350.0				350.0	
GENERAL RADIO, ATE, DIGITAL, G.R. - 1792	CAT			250.0							250.0	
GENERAL RADIO, ATE, DIGITAL G.R. 2235 (5)	CAT(5)			70.0	70.0	70.0	70.0	70.0			350.0	
GENERAL RADIO, ATE, DIGITAL G.R. 2225 (AN/USH) 465A (10)	CAT(10)			100.0	100.0	100.0	100.0	100.0			500.0	
GRUMAN ELECTRONICS SYSTEM ATE, ANALOGUE/DIGITAL (CEE)	CAT								1,200.0		1,200.0	
LITTON, ATE, CONTINUITY/SHORT HIPOT, FLIEXIBLE AUTO CIRCUIT TESTER (FACT)	CAT			1,800.0							1,800.0	
FIVE (5) ABC DIGITAL ELECTRONICS INC., ATE, CONTINUITY/SHORT/HIPOT, MODEL QC -330 HU	CAT(5)							250.0			250.0	
LITTON, ATE ANALOGUE COMPUTER POWER SUPPLY TESTER (CPST)	CAT							75.0			75.0	
HEWLETT-PACKARD, ATE, ANALOGUE/ DIGITAL MODEL HP 3062	CAT								170.0		170.0	
SUB-TOTAL (4)		300.0		2,320.0	170.0	348.0	1,620.0	495.0	1,370.0		6,623.0	

LOCATION  
DESCOM  
Tobyhanna

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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DIGITAL ADP, LASER SIMULATED  
SYSTEM, VAX 11/7800

300.0

300.0

SUB-TOTAL (5)						300.0					300.0	
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TOBYHANNA TOTAL		1,310.0	106.0	3,954.0	170.0	648.0	1,620.0	1,608.0	11,317.0	2,200.2	22,930.0	3,100.0
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LOCATION  
DESCOM  
SUMMARY

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
ANNISTON				494.4	1,307.8	636.5	4,056.6	1,751.2	1,946.2	2,640.0	12,831.9	
CORPUS CRISTI			920.0	1,501.0	353.0	490.0		1,974.5			5,238.5	
LETTERKENNY				410.0	252.2	1,036.4			11,251.0		12,949.6	
LEXINGTON-BLUE GRASS								179.3		360.0	539.3	
MAINZ			221.1								221.1	
RED RIVER					790.0	540.0	379.0	9,491.0			11,200.0	
SACRAMENTO					1,120.2			1,400.0			2,520.0	
SAVANNA					323.0						323.0	
SHARPE						190.0			8.0	15.0	213.0	
SIERRA							114.0				114.0	
TOOELE			230.0	358.1	160.8	743.3	1,494.0	3,491.4	2,126.0	3,651.0	9,693.6	3,676.0
TOBYHANNA		1,310.0	106.0	3,954.0	170.0	648.0	1,620.0	1,605.0	11,317.0	2,200.2	22,930.0	3,100.0
DESCOM TOTAL		1,310.0	1,477.1	6,717.5	4,477.0	4,284.2	7,663.6	19,892.2	26,648.2	8,866.2	78,774.0	6,776.0

LOCATION

LABCOM

HDL

## ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
MENTOR, WIRE WRAP MACHINE DN660 C.V. GERBER, PCB PHOTOPLOTTER, DFP80A	CAD CAE CAM								150.0		150.0	
PC BASED CAD/CAE SYSTEM SOFTWARE, AUTOCARD, PCB PREP & TOUCHSTONE	CAD CAE							100.0		120.0	220.0	
TO BE DETERMINED - ELECTRICAL & MECHANICAL CAD/CAM/CAE SYSTEM	CAD CAM CAE											2,000.0
COMPUVISION CBP 200,CV150,GERBER 35 FOR GERBER PHOTOPLOTTER, CV PHOTOPLOTTER 150; FOR CREATION OF PROTOTYPE AND 1ST PRODUCTION PCB'S	CAD CAM								450.0		450.0	
TO BE DETERMINED- CNC PUNCH PRESS	CNC									54.0	54.0	
TO BE DETERMINED- CNC LATHE	CNC								120.0		120.0	
TREE MACHINE TOOL CO, CNC MILLING MACHINE, JOURNEYMAN 320	CNC						54.5				54.5	
WELLS INDEX, CNC MILLING MACHINE, #420	CAM							60.4			60.4	
CHARMILLES ANDREWS, TRAVELING WIRE EDM, EF20-330 FOR ELECTRIC DISCHARGE MACHINING.	CAM						63.3				63.3	
GENERAL ELECTRIC, CNC LATHE CONTROLLER	CNC							55.2			55.2	
MORI SEIKI, CNC LATHE, AL-2AM	CNC						76.4				76.4	
HDL TOTAL							194.2	215.6	720.0	174.0	1,303.8	2,000.0

LOCATION  
LABCOM  
MTL

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
GENERAL ELECTRIC SYSTEM, CALMA/APOLLO DN300	CAD CAE							165.0	165.0		165.0	
NUMERDEX IBM BASED CAM DOS SYSTEM FOR CNC PROGRAMMING	CAM							18.0			18.0	
KEARNEY & TRECKER, CNC HORIZONTAL TURNING MACHINE FOR PROTOTYPE & TEST OF SPECIAL WORK AND SMALL BATCH CUSTOMER PRODUCTION.	CNC							293.2	293.2		293.2	
CINCINNATI-MILACRON, CNC MOD 12040 LATHE FOR SMALL BATCH PRODUCTION	CNC							140.0	140.0		140.0	
CINCINNATI-MILACRON, CNC VERTICAL MACHINING CENTER, 20VC 2,000 FOR SMALL BATCH PRODUCTION	CNC							180.0	180.0		180.0	
MAZAK, CNC LATHE QT 20N	CNC							70.0			70.0	
BURGMASER, CNC HORIZONTAL MILLER, HTC-300 FOR SMALL BATCH PRODUCTION	CNC			220.0							220.0	
MTL TOTAL				220.0				88.0	778.2		1,086.2	
LABCOM TOTAL				220.0			194.2	285.6	1,498.2	174.0	2,390.0	2,000.0

LOCATION \_\_\_\_\_ ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT  
 MICOM ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000) PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
IBM, INDUSTRIAL ROBOT, 7545 FOR ELECTRICAL COMPONENT INSERTION (P.I)	CAR						45.0				45.0	
IBM PC/AT LASER SEALING SYSTEM FOR AUTO SEALING OF CHIPS	CAM							2,000.0		2,000.0	2,000.0	
WESTLAND LASER MARKER AMERICAN MERLIN ROBOT, INTEL COMPUTER 86/380-DEC VAX 750 FOR FULLY AUTOMATED DESIGN AND MANUFACTURE OF ELECTRONIC CABLES AND HARNESS.	CAD CAM						2,200.0				2,200.0	
ELECTRIC WAVE SOLDERING SYSTEM	CAM				454.0						454.0	
COMPUTER PLATING EQUIPMENT FOR AUTO CONTROL OF PLATING OF TANKS, PUMPS AND SPECTRAL ANALYSIS EQUIPMENT	CAM		900.0								900.0	
HEWLETT-PACKARD, R&D PROTOTYPE- SYSTEM, 9816 COMPUTER FOR REAL TIME ULTRASONIC IMAGING INSPECTION OF COMPOSITES	CAI						1,160.0				1,160.0	
PROTOTYPE PRINTED CIRCUIT BOARD INSPECTION SYSTEM	CAI	365.0									365.0	
MICOM TOTAL		365.0	900.0		454.0		3,405.0			2,000.0	7,124.0	

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

LOCATION  
TACOM

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
INTERGRAPH, CONCEPT DESIGN, PROTOTYPE DESIGN, REPLACES COMPUTER VISION SYSTEM	CAD							1,600.0	3,500.0		5,100.0	
BRIDGEPORT SERIES II BMC 7845 WITH E2 - CAM II FOR CNC MILLING INCREASE IN CAPACITY AND PRODUCTIVITY	CNC				130.5						130.5	
COMPUTER VISION SYSTEM	CAD	500.0									500.0	
HAMILTON TEST SYSTEM, TWELVE AUTO DYNOMETER, FINAL INSPECTION OF REBUILT ENGINES	CAI				363.0	540.0	803.0	180.0			1,886.0	
ADVANCED METROLOGY SYSTEM INTEGRATION (MMT)	CAD			848.0	800.0		700.0	700.0			3,048.0	
ABRAMS TECH-MACHINE DIAGNOSTICS (MMT)	CAD			250.0							250.0	
CARC APPLICATION PROCESSING TECH (MMT)	CAD					529.0					529.0	
ADAPT AND AUTO ACCOUSTIC EMIS WELD (MMT)	CAM				800.0						800.0	
ABRAMS TANK PRODUCTIVITY IMPROV. (MMT)	CAM				1,500.0	1,143.0					2,643.0	
COLD FORGE GEARS TO DRAWING TOLERANCES (MMT)	CAD			307.0	300.0						607.0	
FOUNDURY CAST PROCESS USING FLUID FLOW PLUS THERMO ANALYSIS (MMT)	CAD			100.0							100.0	
GEAR DIE DESIGN & NIGHT COM TECHNOLOGY (MMT)	CAM			200.0							200.0	
TACOM TOTAL		500.0		1,705.0	3,893.5	2,212.0	1,503.0	2,480.0	3,500.0		15,793.5	

LOCATION  
TECOM

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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ONE (1) IBM CONTROLLER, 5088 CAD  
SIX (6) IBM PROCESSORS, 5085  
SIX (6) IBM DISPLAYS, 5081 ONE  
(1) IBM PLOTTER, 7375 FOR DESIGN  
OF SPECIALIZED TESTING FACILITIES

203.0

203.0

ARBAT RETROFIT AT YUMA CAT  
PROV. GRD. 2973 x 40% = 1,149.2  
(PROVIDED BY PBMA, NO DETAILS)

1,189.2

TECOM TOTAL											203.0		1,392.2
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LOCATION: **TRSCOM**  
**BRDEC**

ARMY MODEL: **COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT**

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
STAND ALONE P.C. TYPE PROCESSOR CAD TO BE USED FOR PROGRAMMING OF CAM SIX(6) CNC MACHINE TOOLS	CAD									35.0	35.0	
GIDDING & LEWIS BORING, DRILLING, MILLING, PC50	CNC			586.2							586.2	
HES MACHINE TOOL CO. HORIZONTAL TURRET LATHE, 400 CNC	CNC					136.9					136.9	
TREE MACHINE TOOL CO. VERTICAL HEAVY DUTY MILLING MACHINE, J-100	CNC			72.6							72.6	
TREE MACHINE TOOL CO., VERTICAL HEAVY DUTY MILLING MACHINE J-300	CNC								75.0		75.0	
TREE MACHINE TOOL CO, HORIZONTAL TURRET LATHE, UP 1000	CNC								70.0		70.0	
STRIPITT HOUDAILLE, TURRET PUNCHING MACHINE, 12 STATION FC 75/100	CNC			84.4							84.4	
CINCINNATI - MILACRON ROBOT T3-776 (MANIPULATOR & CONTROLLER)	CAR(2)					99.0					99.0	
CINCINNATI - MILACRON, ROBOT T3-726 (MANIPULATOR & CONTROLLER)	CAR						61.0				61.0	
IRIS 3000 GRAPHICS WORK STATION HOST COMPUTER TO CONTROL THE T3-776 & T3-726 ROBOTS	CAR							68.0			68.0	
BRDEC TOTAL				743.2		235.9	61.0	68.0	145.0	35.0	1,288.1	

LOCATION  
TROSCOM  
NRDEC

ARMY MATERIEL COMMAND OWNED COMPUTER INTEGRATED MANUFACTURING (CIM) PRODUCTION EQUIPMENT

ACQUISITION COST PER FISCAL YEAR IN THOUSANDS (\$1000)

PLANNED

TITLE	TYPE	1980	1981	1982	1983	1984	1985	1986	1987	1988	PROJECT SUB-TOTAL	1989 & OUT YEARS
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PRIME 995511 FOR PROJECT  
DESIGN & DRAFTING CAD 238.0 238.0

TECHNICS PGT 412508  
FOR TECHNOLOGY TO DESIGN CAD CURRENTLY IN PROCUREMENT (COMPETITION SENSITIVE)

HEWLETT-PACKARD, CAD VECTRA  
MODEL 50 FOR DESIGN/ENGINEERING CAD 19.0 19.0

NRDEC TOTAL									19.0	238.0	257.0	
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TROSCOM TOTAL				743.0		235.9	61.0	68.0	164.0	273.0	1,541.1	
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APPENDIX 4

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 Sunflower AAP, ATTN: SMC SU-OR (Mr. Dick Jackley), DeSoto, KS 66018-0640  
 (1 CY)  
 Twin Cities AAP, ATTN: SMC TC (Ms. Ellen Tillman), New Brighton, MN 55112-5000  
 (1 CY)  
 Volunteer AAP, ATTN: SMC VO-CR (Mr. Wally N. Henry), Chattanooga, TN  
 37422-2607 (1 CY)  
 Crane AAA, ATTN: SMC CN-RMM (Mr. Dan Todd), Crane, IN 47522-5099 (1 CY)

U.S. Army Plant Rep, Bell Helicopter Textron, ATTN: SAVBE-A (Mr. Allen Klein), Fort Worth, TX 76101-1605 (1 CY)

U.S. Army Plant Rep, Boeing-Vertol Company, ATTN: SAVBV-A (Ms. Robin K. Bachman), Philadelphia, PA 19142-0859 (1 CY)

U.S. Army Plant Rep, Hughes Helicopters, ATTN: SAVHU-A (Mr. Malcolm Thomas), Culver City, CA 90230-6370 (1 CY)

U.S. Army Plant Rep, McDonald Douglas, ATTN: SAVMD-A (Mr. Michael R. Pendergrass), Mesa, AZ 85205-9797 (1 CY)

Anniston Army Depot, ATTN: SDSAN-DM-PE (Mr. Larry Knighton), Anniston, AL 36202-5001 (1 CY)

Corpus Christi Army Depot, ATTN: SDSCC-MPI (Mr. Tommy G. Neugent), Corpus Christi, TX 78419-6000 (1 CY)

Letterkenny Army Depot, ATTN: SDSLE-MMD (Mr. William P. Houck/Mr. Jerry Klien), Chambersburg, PA 17201-4150 (2 CYS)

Lexington Blue Grass Army Depot, ATTN: SDSLB-ASG (Mr. Jim Kingsolver), Lexington, KY 40511-5010 (1 CY)

Mainz Army Depot. ATTN: SDSMZ-MIS (Ms. Wendy Stewart), APO New York, NY 09185 (1 CY)

New Cumberland Army Depot, ATTN: SDSNC (SFC James Smith), New Cumberland, PA 17070-5000 (1 CY)

Red River Army Depot, ATTN: SDSRR-NC (Mr. Joe B. Alexander), Texarkana, TX 75507-5000 (1 CY)

Sacramento Army Depot, ATTN: SDSSA-MPE-4 (CAD/CAM Mr. Duane George), Sacramento, CA 95813-5036 (1 CY)

Sacramento Army Depot, ATTN: SDSSA-MPE (Robotics), Sacramento, CA 95813-5036 (1 CY)

Savanna Army Depot, ATTN: SDSLE-VA (Mr. A. Yeager), Savanna, IL 61074-9636 (1 CY)

Seneca Army Depot, ATTN: SDSSE-LME (Ms. Linda M. Guy), Romulus, NY 14541-5001 (1 CY)

Sharpe Army Depot, ATTN: SDSSH-FT-FT (Mr. Robert E. Mustain), Lathrop, CA 95331-5000 (1 CY)

Sierra Army Depot, ATTN: SDSSI-PPC (Mr. Lain Ayers), Herlong, CA 96113-5000 (1 CY)

Tobyhanna Army Depot, ATTN: SDSTO-ME-E (Mr. Frank Estock), Tobyhanna, PA 18466-5075 (1 CY)

Tooele Army Depot, ATTN: SDSTE-PBM (Mr. Merlin E. Peterson), Tooele, UT 84074-5023 (1 CY)

Tooele Army Depot, ATTN: SDSTE-CAME (Ms. Elizabeth Leonelli), Tooele, UT 84074-5023 (1 CY)

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DIRECTOR,

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CNVEO, ATTN: SMSEL-RD-NV (Mr. Steve Holt), Ft. Belvoir, VA 22060-5677 (1 CY)

CSW, ATTN: AMSEL-RD-SW, VHFS, Warrenton, VA 22186-5141 (1 CY)

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HDL, ATTN: SLCHD-PO-P (Mr. Julius Noke), 2800 Powder Mill Rd., Adelphi, MD 20783-1197 (1 CY)  
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MEC, ATTN: AMXOM-SE (Mr. Paul Wagner/Mr. Alvin Takemoto), Rock Island, IL 61299-7040 (2 CYS)  
SEL, ATTN: AMXMC-SEL-E (Mr. Mickey Carter), Texarkana, TX 75501-5000 (1 CY)

NAVY:

Ofc. of Asst. Scty. of the Navy (S&L), ATTN: RMQA-PA (Mr. Steve Linder/Mr. Jack McInnis), Crystal Plaza 5, RM344, Washington, DC 20360-5100 (2 CYS)  
Ofc. of CNO, Technology Assessment Div., ATTN: OP-987L (Mr. Henry M. Cheng), Pentagon, RM5E683, Washington, DC 20350-1000 (1 CY)  
Dir., Naval Ind. Resources Spt Acty., ATTN: CODE OO (Mr. Bill S. Safier), Philadelphia Naval Base, Bldg 75-2, Philadelphia, PA 19112-5078 (1 CY)

AIR FORCE:

Ofc. of Scty. of the Air Force, ATTN: RD&L/AM (Mr. Martin H. Rogers), Pentagon, RM4D866, Washington, DC 20330-1000 (1 CY)  
Ofc. of Asst. Scty. of Air Force (Acquisition), ATTN: SAF/ACQM (Lt. Col. Tom Fitzgerald), Pentagon, RM4C283, Washington, DC 20330-5040 (1 CY)  
CDR, AFSC, ATTN: AFSC/PLMP (Mr. Robert Steele), Andrews AFB, MD 20334-5000 (1 CY)  
CDR, AF Wright Aeronautical Labs, ATTN: AFWAL/MLT (Dr. Vincent J. Russo), Wright Patterson AFB, OH 45433 (1 CY)

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SUPT. USMA, ATTN: MADN-4 (Ltc Lanch Leach), West Point, NY 10996 (1 CY)  
Fgn. Science & Technology Ctr, ATTN: AMXST-SDI (Mr. Kent Schussel), 220-7th St., NE, Charlottesville, VA 22901 (1 CY)

MISCELLANEOUS:

DTIC, ATTN: FDA, Cameron Station, Bldg 5, Alexandria, VA 22304-6145 (2 CYS)  
IEA, ATTN: AMXIB-PS, Rock Island, IL 61299-7260 (20 CYS)



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